



The Cost of Defence

ASPI Defence Budget Brief 2007-08

Sixty million, two hundred & seventy-one thousand, four hundred & thirty-eight dollars & thirty-six cents per day.

Prepared by:
Mark Thomson
Program Director
Budget and Management

Top 20 Project Briefs compiled by:
Gregor Ferguson
Tom Muir
Editor and senior writers of Australian Defence Magazine

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Australian Strategic Policy Institute (ASPI)
Level 2, Arts House, 40 Macquarie Street
Barton ACT 2600
Australia

Tel: + 61 (2) 6270 5100

Fax: + 61 (2) 6273 9566

Email: enquiries@aspi.org.au

Web: <http://www.aspi.org.au>

Note on title:

The figure of \$60,271,438.36 represents one three-hundred-and-sixty-fifth of the total funds available to Defence for financial year 2007–08. This does not include funds appropriated to the Defence Housing Authority, those administered by Defence for military superannuation schemes and housing support services, nor the additional funds provided directly to the Defence Materiel Organisation.

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DIRECTOR'S INTRODUCTION

This is ASPI's sixth annual Defence Budget Brief. Our aim remains to inform discussion and scrutiny of the Defence budget and the policy choices it entails.

As has been the custom in the past, we've added a new section in this year's Brief. Simply titled *Risks*, it explores the risks to the achievement of the government's plans for the defence force. It covers the risk of there not being enough money to deliver what's planned, the risk of there not being enough people willing to serve in the defence force, and finally, the risk of planned equipment not arriving on time and to specification. With the largest expansion and modernisation of Australia's defence force since the 1960s underway, we think it's worth keeping a close eye on potential problems.

A number of people have contributed to the preparation of this Brief including ASPI intern Jacob Townsend, and staff members Andrew Davies and Raspal Khosa. Fortunately, Ms Karla Bogart once again provided invaluable assistance by preparing the explanations of Defence's financial statements – a task of some considerable complexity.

And our colleagues from the Australian Defence Magazine have again done a great job of capturing informative snapshots of the top 20 Defence projects. Many others have helped by providing comments, offering advice, and checking facts. Our thanks go out to them all.

Also, Defence was kind enough to look over a preliminary draft of this Brief and provide valuable comments. This helped clarify some important points and resulted in improved accuracy in many areas. Of course this does not in any way imply that Defence endorses this document or even supports its conclusions.

My colleague Dr Mark Thomson, who is the Manager of ASPI's Budget and Management Program, has once again pulled together the Brief in the short time available. For this I extend my sincere thanks. As always, responsibility for the judgements contained herein lie with Dr Thomson and me alone.

Lastly we should acknowledge that we at ASPI are not disinterested observers of the Defence budget. Our funding from government is provided through Defence at the rate of six thousand nine hundred and nine dollars and fifty-nine cents (\$6909.59) per day. Details can be found in our 2005-06 Annual Report.

Peter Abigail
Director

EXECUTIVE SUMMARY

This year's budget capped off an extraordinary thirteen month period that saw the government promise more than \$41 billion worth of new defence initiatives over eleven years; around \$16 billion last budget, \$14 billion this budget, and more than \$11 billion in between.

Unfortunately, notwithstanding all the new money flowing into Defence, there remains a mismatch between plans and funding. Although the situation is better than it was last year, more money will still be required to deliver the government's plans for the defence force.

How much are we spending?	\$22 billion in 2007-08
	\$2.1 billion more than last year
	2% of GDP

Total Defence Funding for 2007-08 will be \$22 billion, which is an increase of \$2.1 billion on 2006-07. Continued growth is planned across the next four years with a budget of \$25.1 billion estimated for 2010-11. As a percentage of GDP the 2007-08 budget represents 2%, a level that has not been reached since 1995-96. This level of defence burden will probably be maintained over the next few years provided that predicted economic growth tracks planned defence spending.

\$11 billion promised prior to budget	~ \$10 billion to expand the size of Army
	\$260 million for operational supplementation
	\$1 billion to boost recruitment and retention

In August 2006 the Prime Minister announced the expansion of Army by two light infantry battalions. Dependent on timing, the total cost is estimated to be about \$10 billion. The expansion is planned to occur in two phases. Stage 1, funded at \$4.1 billion over eleven years in Additional Estimates, will see a new battalion manned by the end of 2008 and ready to deploy by 2010. The timing of Stage 2 is pending.

In December 2006, the government agreed to implement a range of recruitment and retention initiatives for uniformed personnel, at a total cost of a little over \$1 billion over eleven years. These include:

- targeted retention measures (\$226 million)
- Navy allowances (\$113 million)
- reform of Defence Force Recruiting (\$371 million)
- Military Gap Year enlistment initiative (\$306 million).

An additional \$260 million was provided to maintain, and in some cases expand, ADF deployments to Timor Leste (\$166 million), Afghanistan (\$68.6 million), Solomon Islands (\$14 million) and Iraq (\$12 million).

An extra \$14 billion over 10 years including \$7.7 billion over 4 years	\$6.1 billion for 24 Super Hornet F/A-18F aircraft \$2.1 billion to boost recruitment and retention \$1.8 billion of additional logistics funding \$1.3 billion for C-17 personnel and operating costs \$1.3 billion for operational supplementation \$950 million for Defence Housing costs \$382 million for intelligence and security initiatives \$135 million for enhanced protective security
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- The government will provide \$6.6 billion over 13 years (including \$6.1 billion across the forthcoming decade) to acquire 24 F/A-18F Super Hornet multi-role aircraft, weapons and associated support, and to provide for personnel and operating costs to support the capability. Aircraft, weapons, facilities upgrades and training will cost \$3.9 billion.
- Recruiting and retention receives \$2.1 billion over 10 years to further increase the number of people who join and remain in the military in addition to the \$1 billion promised last year. Initiatives include:
 - reform of the ‘other ranks’ pay scales (\$585.4 million)
 - enhancing financial assistance for home ownership (\$863.8 million)
 - further funding for Navy Sea Change program (\$86.5 million)
 - increasing funding for marketing and branding activities (\$227.8 million)
 - enhanced technical trade training opportunities (\$71.0 million)
 - professional development for ADF medical officers (\$12.1 million)
 - expanding and enhancing cadets (\$100.0 million)
 - transition service for personnel considering leaving service (\$124.6 million).
- \$1.8 billion of additional logistics funding will alleviate a range of equipment obsolescence and inventory shortfall issues and enable enhanced maintenance, refits, and upgrades. Platforms include Collins class submarines, ANZAC class frigates, Hercules transport aircraft, Hawk Lead-in Fighter training aircraft, Army B-class vehicles and Black Hawk helicopters.
- \$1.3 billion will cover the personnel and operating costs of the C-17 aircraft that are now entering service.
- Military operations will consume \$1.3 billion. That includes \$389 million to continue operations in Iraq for another twelve months, \$703 million to undertake an expanded role in Afghanistan for two years and \$135 million for another year in Timor Leste. This brings the total cost of our role in the invasion, stabilisation and rehabilitation of Iraq to \$2 billion. The corresponding figure for Afghanistan to \$1.7 million.

- \$954 million over the next ten years has been provided to cover additional payments to the Defence Housing Authority to satisfy the government's competitive neutrality policy.
- \$382 million will go to enhance Australia's security and intelligence capabilities: \$307.2 million for improved intelligence collection, processing and dissemination capabilities, and \$75 million for the Defence Signals Directorate to increase the security and protection of government communications and information systems
- \$135 million has been provided over four years for enhanced protective security for Defence property and personnel in continuation of measures commenced in the aftermath of 9/11.

Is there enough money?	No. Although the situation is better than last year, further money will be required.
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Despite the additional \$1.8 billion of additional logistics funding in the budget, under current plans, rising personnel costs and escalating investment levels look certain to squeeze the money available for operating costs from 2008-09 onwards. Of particular concern is the absence of funds to cover all the additional personnel and operating costs of new equipment to be delivered over the next several years like AEW&C, Armed Reconnaissance Helicopters and Air to Air Refuelling, all due for delivery in 2009. Cost pressures also appear to be emerging in the investment program.

\$1.8 billion of capital investment deferred	\$1.8 billion of planned investment has been deferred in this budget, on top of \$390 million deferred at the start of the year.
	Approval of projects in the Defence Capability Plan has fallen behind schedule.

Due to delays in the AEW&C and M113 upgrade projects, \$390 million of investment was deferred from 2006-07 into the two subsequent years. Now, in this budget, a further \$1.8 billion was deferred to 2010-11 and beyond. In total, more than \$2.1 billion of planned new capability will now arrive late. At the same time, the approval of new projects from the 2006 Defence Capability Plan has already fallen behind schedule even though the document is less than 12 months old.

Unfortunately, the mounting delays create a steep hill of planned new investment in the near future; what makes this year easier inevitably makes future years harder. Under current plans, investment in major capital equipment will grow from \$4.8 billion in 2007-08 to \$6.9 billion in 2010-11. Although some of this increase is due to off-the-shelf items like the C-17 and Super Hornet acquisition, much is not. A question mark hangs over the feasibility of the ambitious targets for investment over the next decade, especially given the skills shortage within the Australian economy. It may be that still further off-the-shelf foreign purchases will be necessary to deliver the government's plans on schedule.

People	For the first time in three years the size of the permanent ADF has grown, albeit by only 325 personnel.
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Over the three years to 2005-06, the strength of the permanent ADF fell by 929 people at a time when the goal was to increase the size of the force by a similar amount. For this reason, the increase of 325 personnel in 2006-07 to 51,476 is great news. Building on this, the government has set goals of 55,700 for 2010-11 and 57,000 for 2016-17 (plus another 1,000 once the next stage of the Army expansion is approved).

The budgeted strength of the ADF for 2007-08 is 52,505. This represents an increase of more than 1,000 personnel, including an additional 199 in Navy, 640 in Army and 190 in Air Force. With \$3.1 billion allocated to improve recruitment and retention across the decade, the prospects look better than at any time since 2000. Given the volume of new capability on order, it is critical that the targets are met.

Defence Management	Defence Management Reform commences
	2005-06 Financial Statements improved

Following the release of the report of the 2007 Defence Management Review, Defence has embarked on a major reform program focusing on governance, accountability, ministerial support, personnel management and IT systems. Unfortunately, the Review did not recommend a detailed business model for Defence (this is presently the focus of an internal review). Nor did it identify how efficiency would be ensured. The outcome of the present reforms depends on decisions that are yet to be taken and on the boldness with which the CDF and Secretary attack the task.

Defence's financial statements for 2005-06 received an 'except for' qualification which represents a solid improvement on that attained for the previous three years.

What's next?	We need a funded long-term plan for the ADF.
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The current piecemeal cycle of investment followed by bids for additional personnel and operating costs is no substitute for coherent long-term planning. Not only does it fail to provide incentives for Defence to deliver capability efficiently, but it robs the electorate of the ability to judge the opportunity cost of decisions.

With an election due this year, and fiscal rectitude at an all-time premium in the public eye, the question will be: how much will projected future surpluses need to be reduced to deliver the ADF that's currently planned? Under the *Charter of Budget Honesty* we should find out one way or another.

SECTION 1 – BACKGROUND

1.1 Strategic Context for the Budget

This is the sixth budget since the attacks of September 2001 and the sixth consecutive budget in which the government has provided more money for defence and national security.

Anyone who thought that funding would have tapered off six years into the so-called War on Terror was dead wrong. In the last two budgets and in the intervening months, the government has promised no less than \$41 billion worth of defence initiatives. This comes on top of the additional \$29.4 billion provided by the Defence White Paper in 2000, not to mention earlier post-9/11 funding that saw Defence receive in excess of \$1.8 billion. This river of money will see the defence budget rise from \$12.6 billion in 2000-01 to a projected \$29.8 billion in 2016-17. Accounting for inflation, this amounts to a 58% real rise over sixteen years.

While the government has been spending a lot of money on defence, it has been less forthright when it comes to explaining why. Six years on from 9/11 we are yet to see a new Defence White Paper let alone a holistic National Security Strategy. In the same period the United States has delivered two of each.

Instead, we've had two short *Defence Updates* that bypass long-term strategic issues and focus on near-term events. Nonetheless, considered along with the actual flow of cash, a picture does emerge. It's a matter of following the money to see where the real priorities are headed.

The largest bucket of new funding (including from the 2000 White Paper) has been directed to equipment acquisition. From a base of around \$2.5 billion in 2000, investment in major capital equipment will be just short of \$7 billion in 2010. Since 2000, around \$82 billion worth of projects have been either approved or slated for approval across the next nine years. Of these, 82% by dollar value involve the replacement or upgrade of existing capabilities and only 18% represents genuinely new additions to the force structure.

Broadly speaking, the scale and range of capabilities being developed are only marginally different from that maintained for ‘defence of Australia’ in the 1980s and 1990s. For that matter, it’s largely the force structure develop by Menzies when, in the early 1960s, and despite the doctrine of forward defence, he started thinking seriously about the need for Australia to be able to defend itself. Importantly, however, platforms previously fitted-for-but-not-with are now being brought up to combat readiness. One area where a qualitative shift is underway is that the ADF’s strategic mobility is being bolstered through the acquisition of C-17 transport aircraft and substantially larger amphibious lift vessels. Another is the expansion of various intelligence and counter-terrorism capabilities.

More than \$11.5 billion across the forthcoming decade has been promised to the Army since the start of last year. The khaki service is mid-way through expanding from its four battalion structure of the 1990s to eight battalions for the 2010s while ‘hardening and networking’ at the same time. Although the Army and its supporting

mobility assets look to be the big winners of recent decisions, together they still only account for 25% of recent and planned investment. Fully 67% of investment remains focused on the air and naval capabilities traditionally seen as necessary to control our air and maritime approaches in defence of the continent and, if necessary, to contribute to regional security if strategic competition in Asia intensifies. The remaining 8 percent goes for C4I capabilities.

The next largest component of recent funding has gone to military preparedness and the conduct of operations. Since 2000, the baseline annual defence budget has been increased by roughly \$760 million exclusive of operational supplementation, personnel costs and equipment investment. Much of this funding has been directed to logistics; in part to make the force more readily deployable and sustainable, and in part to meet rising underlying costs. Although there are few documented examples of increased rates of effort for major platforms, there is little doubt that the ADF is now much more readily deployed and sustained than at any time in the past three decades.

The ADF is currently deployed on two fronts at a cost of more than a \$1.1 billion per year. Roughly \$160 million goes to maintain 1,240 troops in the ‘arc of instability’, while another \$970 million sustains our roughly 2,500 personnel in US-led coalition operations in Iraq and Afghanistan. While these are impressive figures, operations only account for 5% of the budget and involve only around 7% of the permanent force. The ADF is busy, and under some pressure as a result, but nowhere near operating at full tilt.

Finally, serious money has been directed to personnel. Beginning with the 2000 White Paper, more than \$4 billion has now been committed to personnel issues. This is not just a matter of keeping up with wage growth in the broader economy, but of attracting increasingly skeptical potential recruits and retaining specific skills that are in short supply. Despite the additional funding, over the past four years the size of the permanent ADF has fallen by around 600 people, notwithstanding plans to increase by more than a thousand over that period. While perhaps not commanding the profile of multi-billion dollar investments and overseas deployments, military personnel numbers are fast becoming a critical strategic issue.

In short, the ADF has gone from being a largely nascent force with ageing equipment and modest preparedness to a modernising and increasingly deployable force – albeit one that is only slowly, and modestly, expanding in scale and scope. This rebuilding of the ADF has been a direct response to three factors: the persistent instability of our near region that commenced with East Timor in September 1999, the demand for coalition contributions under the rubrics of counter-terrorism and counter-proliferation that followed September 2001, and greater uncertainty about Asia's major-power strategic balance in the light of the rise of China and India, and Japan's changing strategic role.

The first two factors have created a heightened sense of insecurity that has allowed the government to ratchet up defence spending that, in terms of investment, remains largely focused on the high-end air and naval capabilities demanded by the third. What comes next depends on several factors.

We are yet to see what sort of demands a post-Iraq/Afghanistan world makes on us. If military force is to continue as a tool of first, rather than last, resort, the lesson from the last six years – for our allies and us alike – is that armies of the scale set by post-Cold War atrophy are inadequate to the task. If the international efforts fail in Iraq and Afghanistan – and they might – more than anything else it will be because half measures have been employed. Half measures from fighting wars with armies of a scale built for peace. In historical terms, the economic and human cost of both conflicts to us and our allies has been slight in all other than political terms.

The failure of international coalitions to muster the critical mass to prevail decisively in both Iraq and Afghanistan is not so much a reflection of military miscalculation, although they abound. Much more, it reflects the unreconciled gap between the scale of the tasks and the limited willingness of voters to expend blood and treasure to deal with what are, despite the rhetoric, limited threats at worst. In the circumstances, short, low-casualty wars are saleable; as we have seen, anything much worse is bound to turn to political poison eventually.

So the question is: will our allies continue to embrace the Bush doctrine of pre-emptive war and develop the wherewithal to prevail when doing so? If so, we'll have to decide whether to follow suit. More likely, once we've extricated our collective forces from the sands of Iraq and the hills of Afghanistan, we'll be much more cautious – especially when it comes to the use of ground forces. Our fourth new multi-billion dollar C-17 aircraft may enter service just in time to sit idle.

Closer to home, we cannot expect respite any time soon from the task of helping our neighbours build stability. There is little doubt that more resources will be needed for the task. Although the ADF will have a role to play (perhaps even one justifying a further expansion of the land force) it cannot be the entire solution. At the moment, the resource we need most is new ideas. While it is increasingly clear that our current approach is inadequate, the way ahead remains decidedly unclear. In the long run, we may have to take bolder steps if we want to achieve more than stop-gap results.

Beyond our present trials both near and far, our longer-term commitment to develop expensive high-end air and maritime capabilities will depend on what happens in the middle ground of South-East and East Asia. Once again, respite looks unlikely. Not only is military modernisation continuing apace throughout the region, but the rise of China continues to cause ructions.

In the past twelve months we've seen a bilateral joint declaration on security signed between Australia and Japan, an inaugural trilateral strategic dialogue between Australia, Japan and the United States, and a proposal from the United States for a quadrilateral arrangement encompassing India. Although we are told that none of these initiatives are directed towards the containment of China, all of them exclude China. This has not gone unnoticed in Beijing.

The strategic balance in Asia is changing and, like it or not, we are becoming ever more closely entangled. With luck, adroit diplomacy and good policy this will prove manageable. Alternatively, we may come to look back on the last six frenetic years with a fondness for easier times.

1.2 Defence Organisation and Management

Commonwealth Outcomes and Outputs Framework

The Defence budget is set out according to a framework of outcomes and outputs. This framework was introduced by the Commonwealth in 1999, and is applied to all Commonwealth agencies. It works like this:

- **Outcomes** are the results or benefits that the Commonwealth aims to deliver to the community through the work of its agencies. They are specified for each agency, and are meant to express the purpose or goal of each agency's activities.
- **Outputs** are the goods and services that each agency produces to achieve its outcomes.

Under the framework, the performance of agencies is measured to assess both how much output they are generating, and the extent to which that output is actually delivering the outcomes intended. So the aim is to show not only how much an agency is *doing*, but how much it is actually *achieving*.

The outcomes and outputs framework is not just an accounting device. It is intended to provide a structure for management decision-making and resource allocation throughout Commonwealth agencies. So the way the framework is applied in an agency like Defence should be very important to its management and performance.

The Defence Outcomes

The key to the effective application of the framework is the specification of the outcome or outcomes. Prior to the 2003-04 budget the government had set down only one outcome for Defence, that being: *The Defence of Australia and its National Interests*.

Since then, the government has broken that down into seven outcomes for Defence:

1. Command of Operations in Defence of Australia and its Interests
2. Navy Capability for the Defence of Australia and its Interests
3. Army Capability for the Defence of Australia and its Interests
4. Air Force Capability for the Defence of Australia and its Interests
5. Strategic Policy for the Defence of Australia and its Interests
6. Intelligence for the Defence of Australia and its Interests

And a seventh outcome covering primarily superannuation payments for current and former Australian Defence Force (ADF) personnel, and housing subsidy provided under the Defence Force (Home Loans Assistance) Act 1990:

7. Superannuation and Housing Support Services for Current and Retired Defence Personnel.

Defence Outputs

The presentation of Defence outputs has changed a number of times since the outcomes and outputs framework was introduced in 1999, and a survey of past output structures can be found in the 2002-03 ASPI Defence budget brief. In 2003-04, what were previously termed Sub-Outputs were almost one-for-one elevated to the status of Outputs grouped under the revised Outcomes. This was a very positive step forward in providing visibility of how the Defence budget is spent. Table 1.2.1 lists the current Outcomes, Outputs and their net costs for 2007-08. A new Outcome/Output structure will be introduced during 2007-08 that will more closely aligns Outputs with the actual organisational structure.

Table 1.2.1: Defence Outputs and Sub-Outputs 2007-08

Outcome	Output	Cost \$m
1. Defence Operations	1.1 Command of Operations 1.2 Defence Force Military Operations and Exercises 1.3 Contribution to National Support Tasks	427 1,130 20 subtotal
		1,577
2. Navy Capabilities	2.1 Capability for Major Surface Combatant Operations 2.2 Capability for Naval Aviation Operations 2.3 Capability for Patrol Boat Operations 2.4 Capability for Submarine Operations 2.5 Capability for Afloat Support 2.6 Capability for Mine Warfare 2.7 Capability for Amphibious Lift 2.8 Capability for Hydrographic and Oceanographic Operation	1,902 641 277 816 264 388 425 300 subtotal
		5,013
3. Army Capabilities	3.1 Capability for Special Operations 3.2 Capability for Medium Combined Arms Operations 3.3 Capability for Light Combined Arms Operations 3.4 Capability for Army Aviation Operations 3.5 Capability for Ground-based Air Defence 3.6 Capability for Combat Support Operations 3.7 Capability for Regional Surveillance 3.8 Capability for Operational Logistic Support to Land Forces 3.9 Capability for Motorised Combined Arms Operations 3.10 Capability for Protective Operations	581 1,116 1,049 587 126 457 164 604 620 1,089 subtotal
		6,393
4. Air Force Capabilities	4.1 Capability for Air Combat Operations 4.2 Capability for Combat Support of Air Operations 4.3 Strategic Surveillance & Response Operations 4.4 Capability for Air Lift Operations	1,843 1,023 1,295 1,165 subtotal
		5,325
5. Strategic Policy	5.1 International Policy, Activities & Engagement 5.2 Strategy Policy and Military Strategy	223 80 subtotal
		303
6. Intelligence	6.1 Intelligence	559
		Total
7. Superannuation and Housing Support Services for Current and Retired Defence Personnel		2,004

Performance Targets and Measurement for Outcomes and Outputs

A key purpose of the outcomes and outputs framework is to provide a basis for setting targets and measuring performance. Recent output performance is detailed in Section 2.5 of this brief.

Defence's Outputs and its Organisational Structure

The traditional concept of Defence's organisational structure is that it consists of three Services – Army, Navy and Air Force – and the Department of Defence. This impression is reinforced by the outcome structure, focused as it is on Army, Navy and Air Force capability outcomes. But, in fact, the Defence organisation is not organised like this at all. It is divided into fifteen 'Groups' (depending on how you count them); these are the entities between which the Defence budget is divided. The arrangement of these Groups is set out in Figure 1.2.2.

These Groups and their executives are responsible for spending Defence's money and doing its business. Consequently, it is within the group structure that financial accountability occurs. The breakdown of the price of the Defence Outcomes across the groups for 2003-04 through to 2007-08 appears in Table 1.2.2. No prior comparable data is available.

Table 1.2.2: Defence Group contributions to the Outcomes (nominal \$ million)

	03-04	04-05	05-06	06-07	07-08	share
Capability Outputs						
Navy	1,286	1,333	2,115	3,145	2,656	13.9%
Army	2,370	2,407	2,632	3,443	3,750	20.0%
Air Force	1,389	1,459	2,212	3,277	2,988	15.6%
Intelligence	311	345	367	362	431	2.2%
Total	5,356	5,544	7,326	10,227	9,825	51.3%
Defence Executives						
Secretary/CDF	4	27	28	32		
CJOC/VCDF (HQAST in 2003-04)	137	412	329	367		
Strategic Policy	136	130	127	127		
Defence Personnel Executive	702	649	634	600		
Capability (VCDF in 2003-04)	51	26	25	48		
Chief Finance Officer*	338	374	354	340		
Inspector General	11	12	14	13		
Portfolio	-35	252	805	2,068		
Total	1,344	1,882	2,316	3,595	1,211	6.3%
Support						
Defence Science and Technology	292	306	310	328	381	2.0%
Chief Information Officer	25	57	517	489	632	3.3%
Defence Materiel Organisation	4,841	4,999	3,226		4,043	21.1%
Defence Support Group	2,580	2,958	2,300	2,424	2,819	14.7%
Joint Logistics Group					258	1.4%
Total	7,738	8,320	6,353	3,241	8,133	42.4%
TOTAL	14,452	15,747	15,997	17,063	19,170	100%

Source: 2003-04 PAES, 2004-05 PAES, 2005-06 PBS, 2006-07 PBS and 2007-08 PBS. (No actual figures are available from DAR). * Chief Finance Officer Group centrally manages Defence's Fringe Benefits Tax (FBT). In 2004-05 FBT was \$305 million.

Some care is needed in looking at Table 1.2.2 because the presentation of group budgets has been substantially rationalised in the 2007-08 PBS. Also, in 2006-07 DMO received its funds via purchaser provider agreements with other Defence groups, hence the absence of direct funding. Those funds have been retained centrally in 2007-08 and are recorded against DMO directly.

Also, prior to 2007-08, a sizable amount of money remained in a portfolio fund pending allocation. This included funding for budget measures that could not be allocated until after the budget was released, and money needed to meet future pay rises for military and civilian personnel. This does not appear to have occurred in 2007-08.

Note the important fact that almost half of the budget is administered outside of the five groups nominally responsible for delivering the capability outputs.

Invariably, spending in one group generally contributes to a number of different Outcomes/Outputs, so that there is no one-to-one mapping of the Groups into the Outcomes or Outputs. Table 1.2.3 gives the allocation of the individual Outcome costs to the groups for 2007-08.

Table 1.2.3: Defence Group contributions to Defence Outcomes for 2007-08

	Outcome Net Cost \$m						Total
	1	2	3	4	5	6	
Capability Outputs							
Navy		2,656					2,656
Army			3,750				3,750
Air Force				2,988			2,988
Intelligence						431	431
Defence Executives	243	1,78	344	186	223	38	1,211
Support							
Defence Science and Technology	45	95	65	124	26	27	381
Chief Information Officer	11	137	285	181	8	10	632
Defence Materiel Organisation	1,110	1,083	847	966	25	13	4,043
Defence Support Group	165	832	920	841	21	41	2,819
Joint Logistics Group	3	32	184	39			258
Total	1,577	5,013	6,393	5,325	303	559	19,170

Source: 2007-08 PBS

ADF command structure

It is important not to confuse the day-to-day management of the Department of Defence with the command of military operations. The former occurs through the diarchy and group/output arrangements discussed earlier, the latter is exercised through a formal command chain and dedicated headquarters structure. In this parallel arrangement, units are temporarily re-assigned from the Services to be commanded on operations and exercises as required.

The ADF is currently undergoing a phased transition to an integrated model of command and control. This new structure separates the command of operations from the Raise Train Sustain of force elements by the single Services (Figure 1.2.1 refers). Since January 2007, ADF operations have been controlled by VCDF through a single joint headquarters, designated Headquarters Joint Operations Command (HQJOC).

A co-located HQJOC facility is being constructed near Bungendore, NSW. It is to be staffed by up to 750 personnel and will be operational by the end of 2008. Until that time, control of operations, specified exercises and other activity will occur from existing headquarters facilities in Canberra and Sydney, with support from Joint Logistics Command in Melbourne.

Figure 1.2.1: ADF command structure

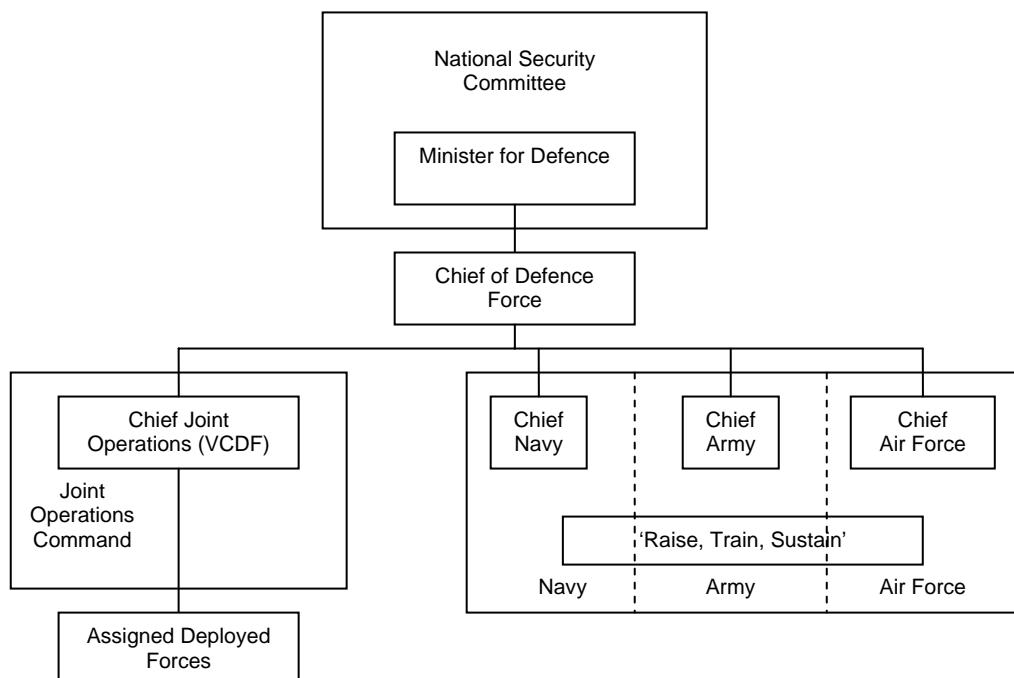
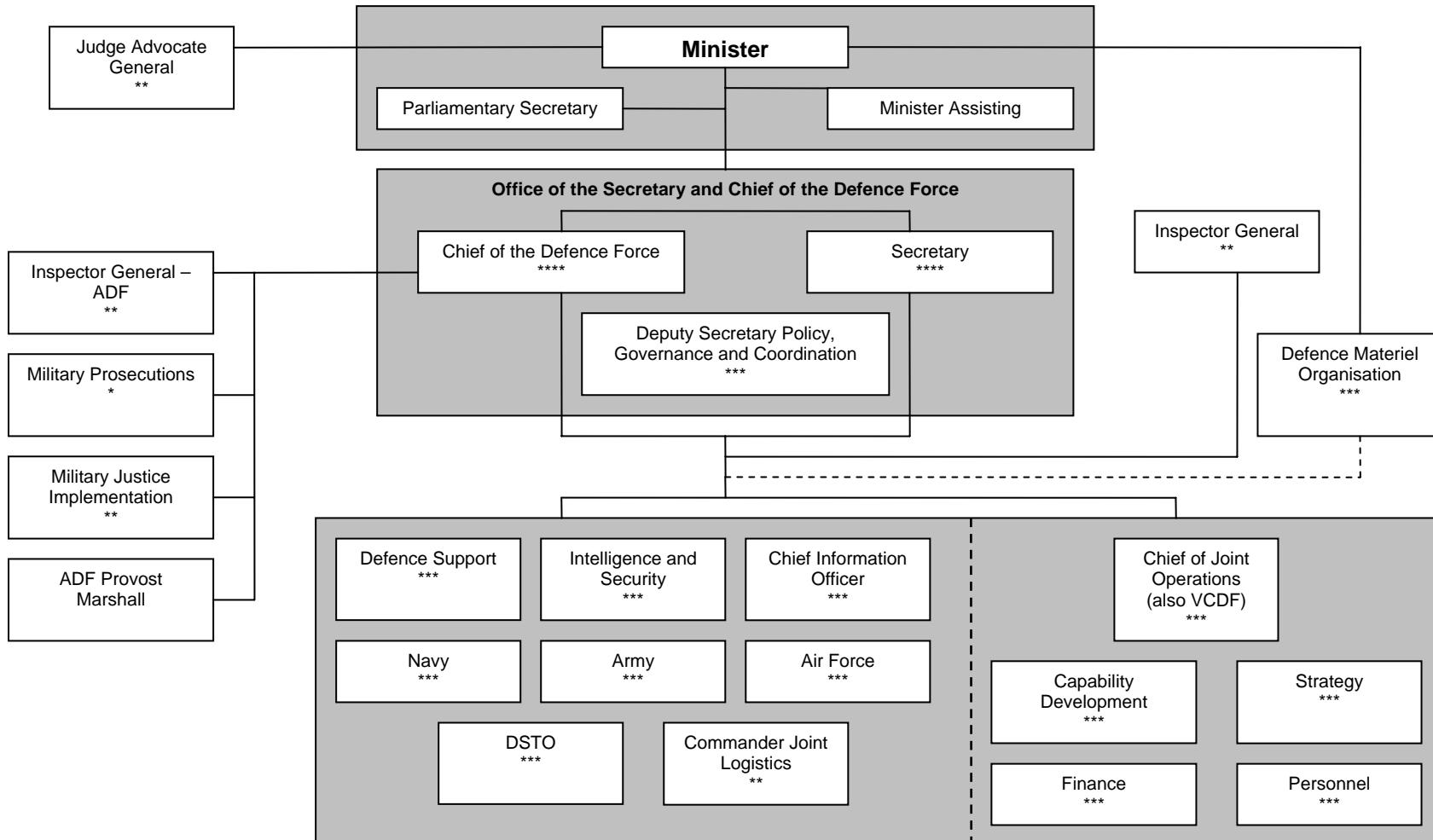


Figure 1.2.2: Defence organisational structure (as at May 2007)



1.3 National Security Spending

The events of 9/11, prompted the recognition that no single agency has the capacity, or range of capabilities, necessary to ensure our security. The threat of terrorism in Australia, and to Australians abroad, has forced a whole-of-government approach to national security at the Federal level¹. Even beyond the threat of terrorism, it's increasingly recognised that our national security interests are best served by a coordinated approach that uses all the levers available to government.

It's beyond the scope of this Defence budget brief to analyse and explain the budgets of all the agencies that contribute to national security. Instead, we'll content ourselves with a broad-brush description of how much is spent in key agencies. If nothing else, it provides a useful yardstick against which we can measure what's spent on defence. Unfortunately, because of the difficulty in finding data, our discussion excludes spending at the state and local level.

A number of Federal agencies can make a credible claim to delivering some part of our national security. In selecting agencies, we have taken a liberal view of what constitutes national security, although we have excluded funding for Outcomes within agencies that are clearly unrelated. Here's our list in alphabetical order, which cannot be claimed as exhaustive:

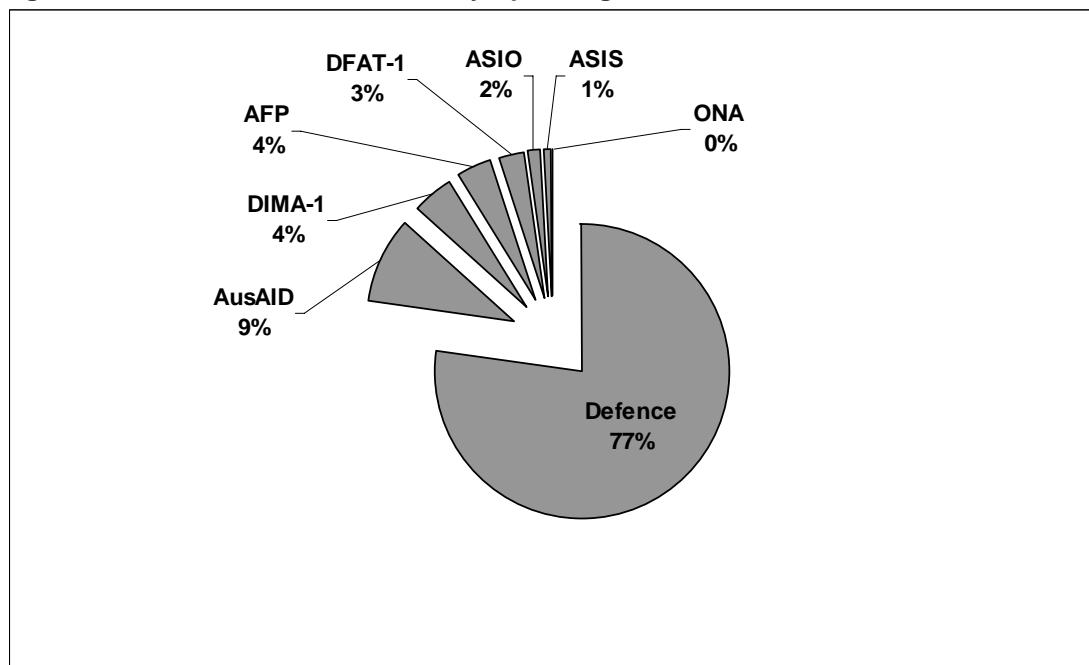
- Australian Agency for International Development (AusAID)
- Australian Federal Police (AFP)
- Australian Security Intelligence Organisation (ASIO)
- Australian Secret Intelligence Service (ASIS)
- Department of Defence (DOD)
- Department of Foreign Affairs and Trade (*Outcome 1: Australia's national interests protected and advanced through contributions to international security, national economic and trade performance and global co-operation.*) (DFAT-1)
- Department of Immigration and Multicultural Affairs (*Outcome 1: Contributing to Australia's society and its economic advancement through the lawful and orderly entry and stay of people.*) (DIMA-1)
- Office of National Assessments (ONA)

Clearly, some of the activities of the listed agencies (even with the restriction to specific Outcomes) go beyond national security. Conversely, other agencies that have been left out, like the Australian Customs Service, make a significant contribution to national security within their broader range of responsibilities. Such is the challenge

¹ See 'Protecting Australia against Terrorism', Australian Government, 2004, available at www.pmc.gov.au.

of dealing with the aggregate data available in the budget papers. Figure 1.3.1 compares the appropriations allocated to each of the aforementioned agencies in 2007-08.

Figure 1.3.1: Federal National Security Spending



Source: 2007-08 Budget Paper No. 4 – operating expenses plus capital

At the risk of stating the obvious, Defence dwarfs all other Federal areas of spending that contribute in some way to national security. This is despite the fact that many agencies (in particular, ASIS, ASIO and ONA) have received large boosts to their funding post 9/11 as Table 1.3.1 below shows. Note: there are extraordinary factors in AusAID spending, including an extra billion dollars in aid to Indonesia in 2004-05.

Table 1.3.1: Federal National Security Appropriations 2001-02 to 2005-06

	2001-02 \$ m	2002-03 \$ m	2003-04 \$ m	2004-05 \$ m	2005-06 \$ m	2006-07 \$ m	2007-08 \$ m	5-year % Increase
Defence	13,725	14,635	15,286	16,156	17,254	19,001	21,326	55%
AusAID	1,854	1,962	1,588	3,301	1,596	1,887	2,613	41%
DIMA-1	829	814	866	810	907	1,037	1,161	40%
AFP	523	391	609	777	968	885	1,066	104%
DFAT-1	660	701	709	774	717	740	777	18%
ASIO	69	90	98	161	187	341	441	539%
ASIS	54	59	80	89	100	131	161	198%
ONA	7	8	11	18	28	28	36	414%

Source: 2002-03 to 2007-08 Budget Paper No. 4 – Schedule 1 & 2

Post 9/11 spending on security

For six budgets in a row, the government has bolstered spending on Australia's security in the areas of intelligence, counter-terrorism response, protective measures and regional cooperation on security as shown in Table 1.3.2.

Table 1.3.2: The cost of 9/11 to the Australian Government 2001-2010 - part 1 (\$m)

	1 01-02	2 02-03	3 03-04	4 04-05	5 05-06	6 06-07	7 07-08	8 08-09	9 09-10	10 10-11	Total
2002-03											
Aviation Security	20.7	40.2	40.9	47.3	41.1						190.2
<i>Identification of Threats</i>	6.9	110.9	117.7	136	154.5						526
Capacity to Respond	31.9	113.7	82.4	66.4	70.8						365.2
Capital	70.9	26.8	50.2	54.3	24.4						226.6
sub total											1308
<i>estimated rollover</i>						290.8					290.8
2003-04											
MYEFO		103									103
A Safer Australia											
<i>Safeguarding Infrastructure</i>			43.2	24.8	11.7	12					91.7
<i>Protective Guarding</i>			60.1	41	5	5.2					111.3
<i>Enhanced Intelligence</i>			73.2	16.4	14.7	14.6					118.9
sub total	28.7	176.5	82.2	31.4	31.8						350.6
<i>rollover</i>						364	364	364	364		1456
2004-05											
MYEFO			143								143
<i>Strengthened Intelligence</i>				65.5	68.1	66.5	69.9				270
<i>Response Capability</i>				24.4	5.5	5.3	5				40.2
<i>Protective Security</i>		46.1	73.1	30.5	32.5	25.1					207.3
<i>Securing our Borders</i>				51.9	35.6	30.1	32.7				150.3
<i>Regional S Cooperation</i>				29.3	19.6	19.3	18.8				87
sub total											754.8
<i>estimated rollover</i>							151.5	151.5	151.5		454.5
2005-06											
<i>Strengthening intelligence</i>					33.1	49.5	90.3	66.3			239.2
<i>response capability</i>					5.7	7.9	6.9	5.6			26.1
<i>Protective security</i>					146.4	214.1	93.3	67.7			521.5
<i>Securing our borders</i>					24.5	42.1	25.8	19.9			112.3
<i>Regional Cooperation</i>					16.4	12.1	16.7	15			60.2
sub total											959.3
<i>estimated rollover</i>								174.5	174.5		349
MYEFO				324							324
2006-07											
<i>Intelligence</i>						163.2	179.9	175.7	213.2	176.3	908.3
<i>Incident Response</i>						40.3	44.4	43.4	52.6		180.6
<i>Protective Security</i>						87.9	96.9	94.6	114.8		394.1
<i>Border Protection</i>						4.0	4.4	4.3	5.2		17.9
<i>Regional Cooperation</i>						18.9	20.8	20.3	24.6		84.6
sub total											1,586
<i>estimated rollover</i>									197.3		197.3
2007-08											
<i>Intelligence</i>							77.2	34.1	36	38	185.3
<i>Incident Response</i>							1.5	3.8	3.4	1.9	10.6
<i>Protective Security</i>							152	181	92	80.7	505.7
Sub total											701.6
Total											8,977

Source: Budget Paper No 2, 2002-03 to 2007-08. All measures extrapolated from last known value.

In addition, we have fought one war as a direct result of 9/11 (Afghanistan), and arguably fought a second that would probably not have occurred without 9/11 (Iraq). As a consequence we have also provided development aid to both countries. The cost of these operations and the value of aid provided are detailed in Table 1.3.3.

Table 1.3.3: The cost of 9/11 to the Australian Government 2001-2010 - part 2 (\$m)

	1 01-02	2 02-03	3 03-04	4 04-05	5 05-06	6 06-07	7 07-08	8 08-09	9 09-10	10 10-11	Total
Total of direct measures											8,977
Afghanistan Deployment	320	179	-5		91	243.2	575.3	225	30.9		1,659
Iraq Deployment		285.3	240.6	284.9	351.4	402.2	373.1	75.3	28.1		2,041
sub total											3,700
Total											12,678
AusAID Afghanistan	26.6	21.5	23.7	19.7	18.5	33.9	99.6	0	0	0	243.5
AusAID Iraq		58.2	44.1	26	22.5	357	22.5	0	0	0	530.3
subtotal	26.6	79.7	67.8	45.7	41	390.9	122.1	0	0	0	773.8
Final Total											13,451

Source: Budget Paper No 2, 2002-03 to 2007-08. All measures extrapolated past last known value except for operational deployment costs and aid.

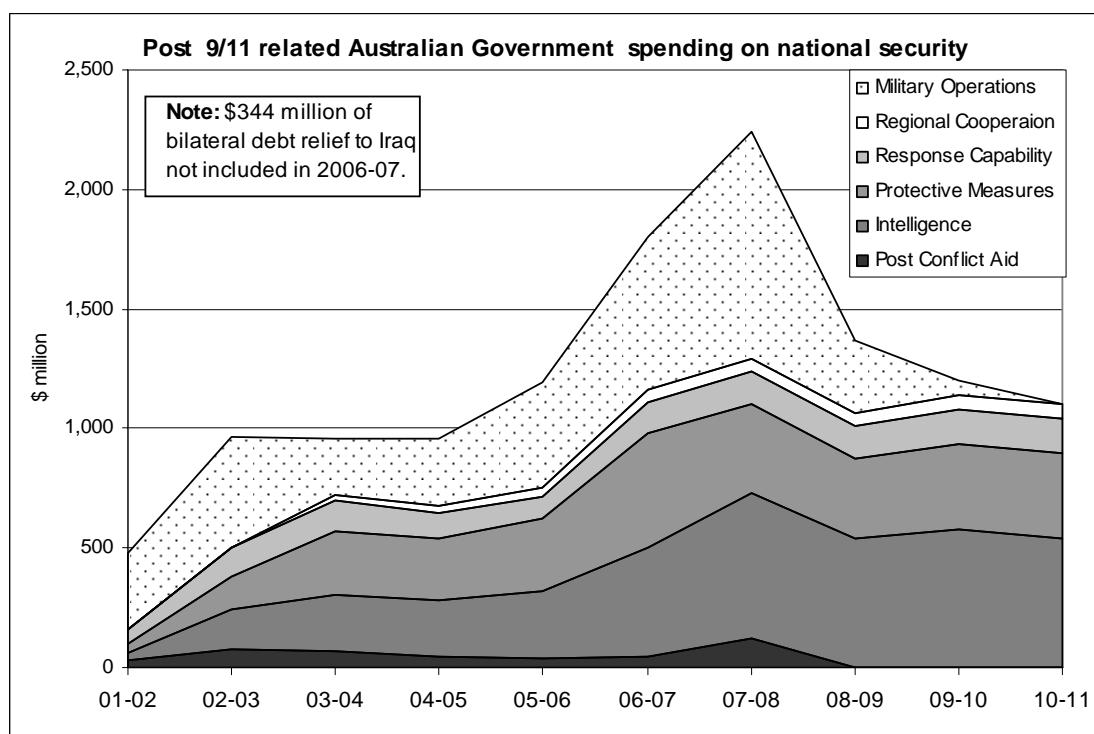
Exclusive of military operations, the total expenditure on post-9/11 security initiatives extrapolated across the decade amounts to \$9.0 billion. Adding to this the cost of Afghanistan (\$1.7 billion) and Iraq (\$2.0 billion) yields a total of \$12.7 billion. Add to this the cost of aid to Iraq (\$530 million) and Afghanistan (\$244 million) and you get a total of \$13.5 billion for the decade. Of course, this does not include spending by state governments or the impact on businesses and individuals. Nor have we included the very substantial funds devoted to border protection in 2001-02 and 2002-03.

Setting aside the cost of military operations in Afghanistan and Iraq, Defence received only a limited slice of the money directed to enhanced security. In fact, across the decade, Defence was only allocated around \$2 billion, or less than one-sixth of the total exclusive of the cost of military operations. What money Defence did get went mainly to counter-terrorism response and intelligence capabilities.

To get a picture of where the money has been spent, it's useful to divide the total funds into six categories: military operations, regional cooperation, counter-terrorism response, protective measures, intelligence and post-conflict aid. Our estimate of the year-by-year allocation of money to these categories is given in Figure 1.3.2. Unfortunately, some funds allocated mid-year or to capital investment (amounting to only around 6% of the total) cannot be unambiguously ascribed to any particular category and have therefore been left out.

In terms of the enduring impact of the initiatives, around a billion dollars has been added to the budget. The largest ongoing cost is in the area of intelligence.

Figure 1.3.2: The cost of 9/11 to the Australian Government



Source: *Budget Paper No 2, 2002-03 to 2007-08*.

SECTION 2 – DEFENCE BUDGET 2007-08 PBS EXPLAINED

The 353 pages of the 2007–08 Defence Portfolio Budget Statements (PBS) sets out the government’s plan for the expenditure of just under \$22 billion by Defence in the coming financial year.

This guide explains and, where possible, analyses the information in the PBS. In doing so, we skim over those parts of the PBS that are relatively clear, and focus on those areas where explanation might be useful. Fortunately this task has been made easier by continuing improvements to the PBS that has made them clearer and more comprehensive.

Some of the material is unavoidably technical due to the disciplines and complexities of accounting. However, it is not necessary to read this section as a whole, or in sequence, to gain insight. Every attempt has been made to enable the reader to jump in and look at those items of most interest. The more technical accounting material has been relegated to Section 9.

This brief does not cover in any detail the funds administered by Defence on behalf of the government for superannuation and housing support services for current and retired Defence personnel.

Most parts of the guide are best read with the PBS at hand. Copies can be downloaded from the web at <<http://www.defence.gov.au/budget/>>.

Section 2.1: Overview [PBS Chapter 1]

The overview chapter of the PBS begins with a brief discussion of the strategic and operational context followed by a survey of the ADF force structure. The key points of the budget are then outlined including, most usefully, a tabulation of measures [PBS Table 1.1]. Important changes to the Defence's organisational structure and Output/Outcome arrangements are then detailed (see Section 1 of this brief for an explanation).

Section 2.2: Resourcing [PBS Chapter 2]

The 'rubber hits the road' in Chapter 2 of the PBS, in terms of allocating money to get things done. It contains the financial statements, new budget measures and the funding bottom line.

How much money will Defence get?

With the Budget Summary on p.19 of the PBS, we get to the heart of the issue. Table 2.1 of the PBS gives three key figures for the Defence budget:

- **Total Revenue from Government**, being those funds formally *appropriated* to Defence by the government for departmental purposes. In 2007-08 this amounts to \$21,232,930,000.
- **Total Departmental Funding**, being those funds actually *available* to Defence including appropriations and revenue from other sources. In 2007-08 this amounts to \$21,999,075,000.
- **Total Defence Resourcing**, being Total Departmental Funding plus those funds appropriated administratively through Defence for superannuation and defence housing subsidies. In 2007-08 this amounts to \$24,801,543,000.

Of these three figures, Total Departmental Funding is the most useful. It represents the funds available to Defence to deliver the departmental outcomes and maintain the ongoing program of investment in new equipment and facilities. It is also the figure commonly used to measure movements in Defence's funding and is therefore the one we shall focus on for most of this brief. It does not include the administered funds covered by Outcome 7. To streamline the discussion we shall henceforth refer to Total Departmental Funding simply as 'Defence funding' where no ambiguity occurs.

Several other measures of the Defence budget arise within the complexities of the Commonwealth finance framework. Three that can be useful when trying to understand Treasury budget papers can be found on page 213, Chapter 7 of the PBS which also contains the formal Budgeted Financial Statements. These won't concern us further except for the Underlying Cash Balance Impact that is relevant to calculating both the percentage of GDP and percentage of government payments.

The mechanism through which Defence receives its funds is somewhat complex, so a detailed explanation appears in conjunction with the discussion of the financial statements in Section 9 of this brief.

With the devolution of DMO as a prescribed agency (see Section 2.7 of this brief), a small amount of revenue that would have previously been received by Defence through appropriations (\$93.4 million), and external funding (\$34.8 million) has been transferred to DMO. In terms of Total Departmental Funding, this adds \$128.2 million to the figure for Defence plus DMO yielding a revised total of \$22,127.3 million. To avoid confusion, and to remain consistent with the spirit of the Defence DMO demerger, we will henceforth examine the funding of the two agencies separately. In any case, the amount involved does not make a significant difference to the growth rates and other metrics that we calculate.

How much has the Budget grown?

Table 2.2.1 displays Defence funding for the past eight, and next four, financial years. Also shown are both the nominal and real year-to-year percentage growth rates.

Table 2.2.1 Total Defence Funding – real (2007-08\$) and nominal growth

	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Funds (nominal)	12,445	12,648	14,501	14,738	15,873	16,700	17,921	19,899	21,999	23,252	24,500	25,060
Growth (nominal)		1.63%	14.65%	1.64%	7.70%	5.21%	7.31%	11.04%	10.56%	5.69%	5.37%	2.29%
Funds (real)	16,618	16,162	18,166	17,926	18,584	18,809	19,241	20,396	21,999	22,908	23,828	23,825
Growth (real)		-2.74%	12.40%	-1.32%	3.67%	1.21%	2.30%	6.00%	7.86%	4.13%	4.02%	-0.01%

In calculating the real growth rate, the nominal dollar values of the individual years have been converted to a single base year using the deflator used to maintain Defence buying power in real terms. Since 2001-02 this has been the implicit Non-Farm GDP Deflator (NFGDPD). Specifically, we have used the historical Defence deflator for the first two years, and the actual and Treasury-projected NFDGPD up to 2007-08. Beyond that we used the deflators implied in Table 2.2 of the PBS (1.5%, 1.3%, 2.3%) there being no official public estimates past 2007-08.

In Table 2.2.1, the average *linear* annual rate of real growth in the budget from 2000-01 (last year prior to the White Paper funding period) to 2010-11 is 4.7%. The average *compounding* annual rate of real growth in the budget for the same period is slightly less at 3.96%. We explore the rate of growth in the defence budget due to the White Paper, and subsequent 3% boost past 2010-11, in Section 4 of this brief.

What is the Defence share of GDP?

Table 2.2.2 gives Defence funding as a percentage of GDP calculated in two different ways. The first column shows Total Departmental Funding as a percentage of GDP and the second column shows the Underlying Cash Balance Impact of Defence funding as a percentage of GDP. The latter accords with government financial statistics conventions used by the Australian Bureau of Statistics and may provide a better measure for international comparison. In 2007-08, the former broached the 2% threshold for the first time since 1995-96.

Table 2.2.2: Defence Spending as a Percentage of GDP

Year	Total Departmental Funding % of GDP	Underlying Cash Balance Impact % of GDP ¹
1999-00	1.93%	not available
2000-01	1.83%	not available
2001-02	1.97%	not available
2002-03	1.88%	not available
2003-04	1.89%	not available
2004-05	1.86%	not available
2005-06	1.86%	not available
2006-07	1.93%	not available
2007-08	2.01%	1.95%
2008-09	2.04%	not available
2009-10	2.06%	not available
2010-11	2.00%	not available

¹ Using data from 2007-08 Budget Overview page 40 and 2007-08 PBS page 214. Note: prior results for total departmental funding have changed due to a revision of GDP for those years.

What is the Defence share of Commonwealth payments?

Defence spending as a percentage of total Commonwealth payments is shown in Table 2.2.3, again in terms of both Total Departmental Funding and Underlying Cash Balance Impact. In terms of the former, the percentage rises before slowly falling in the future.

This falling trend may accelerate in the future as government spending increases, especially as Australia's aging population begins to place greater demands on health and social security. But this is a problem for the coming decades, not the forward estimates period.

Table 2.2.3: Defence Spending as a Percentage of Commonwealth Payments

Year	Total Departmental Funding % Commonwealth Cash Payments	Underlying Cash Balance Impact ¹ % Commonwealth Cash Payments
1999-00	8.13%	not available
2000-01	8.15%	not available
2001-02	8.85%	not available
2002-03	8.72%	not available
2003-04	8.85%	not available
2004-05	8.80%	not available
2005-06	8.70%	not available
2006-07	9.09%	not available
2007-08	9.48%	9.21%
2008-09	9.54%	not available
2009-10	9.56%	not available
2010-11	9.27%	not available

¹ Using data from 2007-08 Budget Overview page 40 and 2007-08 PBS page 214. Note: prior results for total departmental funding have changed due to a revision of GDP for those years.

Changes since the last budget

Since the last budget, a number of significant initiatives have been undertaken that provide context for this year's budget. Table 2.2.4 shows the key initiatives from the 2006-07 PAES [Table 2.2, p. 14].

Table 2.2.4: Key initiatives from the 2006-07 PAES (million \$)

	06-07	07-08	08-09	09-10	4 year total	11 year total
Operational supplementation	178.1	76.0	5.9		259.9	259.9
Reprogramming of MCE	-390.4	112.5	288.0		10.1	10.1
Recruitment and Retention	49.6	82.1	98.9	97.0	327.6	1,016.3
Enhanced Land Force – Stage 1	46.2	433.9	378.7	565.7	1424.5	4,100.0
TOTAL	-116.5	704.5	771.5	662.7	2,022.1	5,386.3

Source: 2006-07 PAES. Note: does not include price and exchange or minor adjustments.

Operational supplementation

Additional funding was made available for operations in Timor Leste (\$165.9 million), Afghanistan (\$68.5 million), Solomon Islands (\$13.7 million) and Iraq (\$11.9 million) in the Additional Estimates.

Reprogramming of Major Capital Equipment

Because of problems with the AEW&C and M113 upgrade projects, major capital investment funding of \$390.4 million was been deferred from 2006-07 into 2007-08 and 2008-09. These two capabilities will now arrive late.

Recruitment and Retention

In December 2006, the government agreed to implement a range of recruitment and retention initiatives for uniformed personnel at a total cost of just over \$1 billion over eleven years. The specific measures are listed later in this section in the context of discussing further personnel initiatives approved in this year's budget.

Enhanced Land Force – Stage 1

In August 2006 the Prime Minister announced that the Army will expand through the addition of two light infantry battalions. Dependent on timing, the total cost of additional personnel, equipment, facilities and operating expenses is estimated to be about \$10 billion. The expansion is planned to occur in two phases with the first battalion to be manned by the end of 2008 and ready to deploy overseas by 2010. The timing of the second battalion will be determined once the core capabilities of the first are established. This initiative builds upon the \$1.5 billion Hardened and Networked Army (HNA) measure announced in the 2006-07 budget.

In December 2006 the Defence Minister announced formal approval to commence Stage 1 of the Army expansion at a cost of \$4.1 billion dollars over eleven years. Included in this first stage are facilities design and development for both stages and the acquisition of more than 100 additional Bushmaster Infantry Mobility Vehicles.

Under the present plan, the infantry component of Army will grow to comprise two mechanised battalions, two light/motorised battalions, one commando battalion and three light battalions.

The 2007-08 Budget Measures and Adjustments [PBS p. 21 – 26]

Changes to this year's Defence budget are set out in the PBS. The changes fall into two categories: budget measures and budget adjustments. The formal distinction between budget measures and budget adjustments is that the former are detailed in the Treasury budget papers and the later are not. In practice, the distinction is variable, with identical items classified differently from one year to the next.

There are twenty-one budget measures and twelve adjustments in this year's budget, all are detailed on pages 6 to 9 and 21 to 26 of the PBS. Budget measures and adjustment for DMO are dealt with later in this section of the Brief.

More than fourteen billion dollars over ten years

Usually, the PBS only deals with funding within a four year period. However, in the last two years, the financial impact of the budget measures has been laid out across the coming decade in Table 1.1 of the PBS (Table 2.2.5 refers).

In total, there was \$14,043 million worth of new initiatives for Defence over ten years in the budget. On a traditional four year basis, there were \$7,678 million in new initiatives. Surprisingly, there were no efficiency initiatives explicitly included in this year's budget and all budget measures were fully funded. In contrast, in last year's budget, funding was only provided for 96% of the cost of new initiatives, and the year before only 65% was made available. (However, at least some additional logistics funding has been absorbed, see Additional Logistics Funding later in this Section.)

Various adjustments to the budget amount to \$110 million over four years and \$4,127 million across the decade. As a result, the total variation to Defence funding comes to \$7,788 million over four years and \$18,171 across the decade. (These figures exceed that in the PBS by \$16.1 million due to the omission of that amount in the totals presented in Table 1.1, p.8)

The budget initiatives in detail [PBS p. 25 – 29]

The new initiatives in the budget are spread between further funding for ADF retention and recruitment (\$2.1 billion), operational supplementation (\$1.3 billion), enhanced intelligence capabilities (\$382 million) and a grab bag of miscellaneous measures including the Super Hornet acquisition (\$6.1 billion), additional logistics funding (\$1.8 billion) and C-17 aircraft personnel and operating costs (\$1.3 billion). In addition, there's \$6 billion for price indexation and a hand back of \$1.2 billion for foreign exchange.

The PBS does a very good job of explaining the measures related to ADF deployments, (p. 30-35). However, since 2005-06, Treasury has directed that routine budget measures not appear in full in the PBS. We rectify this below, drawing very heavily on the descriptions from Treasury's Budget Paper Number 2 – sometimes verbatim.

Recruitment and Retention

In December 2006 the government announced a decade-long \$1,016 billion program to improve ADF recruitment and retention. Initiatives included improvements to career management and a reinvigoration of Cadets as well specific funding (in the 2006-07 PAES) for:

Table 2.2.5: 2007-08 Budget Measures and Adjustments (million \$)

	07-08	08-09	09-10	10-11	4 year total	10 year total
Retention and Recruitment						
Remuneration Structure Reform		59.7	60.6	61.9	182.2	585.4
Defence Home Ownership Scheme		40.9	52.9	64.7	158.6	863.8
Royal Australian Navy Sea Change	1.9	8.6	8.7	8.9	28.1	86.5
Marketing and Service Branding	24.6	26.6	26.8	27.5	105.5	227.8
Defence Apprenticeships	5.0	6.7	6.8	7.0	25.5	71.0
Medical Officer Professional Development	0.6	0.9	1.0	1.1	3.6	12.1
Expanding Cadets	10.0	10.0	10.0	10.0	40.0	100.0
Recruiting Reform – financial advice scheme	4.4	12.2	12.5	12.7	41.9	124.6
subtotal	46.5	165.8	179.2	193.9	585.3	2,071.2
Operational Deployments						
Afghanistan	447.9	191.8	30.9		670.5	670.5
Afghanistan (2006/07 costs)	32.4				32.4	32.4
Iraq	301.7	59.7	28.1		389.4	389.4
East Timor	107.7	27.1			134.8	134.8
Coastal Surveillance	12.6	12.8	13.0	13.3	51.6	51.6
subtotal	902.3	291.3	71.9	13.3	1,278.8	1,278.8
Intelligence						
Improved Defence intelligence capability	17.9	26.8	30.0	31.8	106.5	307.2
Reducing national e-security risk	7.0	6.2	5.7	8.1	27.0	75.0
subtotal	24.9	33.0	35.7	39.9	133.5	382.2
Other Measures						
Super Hornet capability	621.0	990.7	1,286.7	1,072.1	3,970.5	6,074.8
Logistics – additional funding	107.9	291.3	236.2	243.3	878.6	1,800.0
C-17 - personnel and operating cost		73.8	111.9	132.7	318.3	1,326.9
Enhanced protective security	33.1	33.5	34.0	34.8	135.4	135.4
Defence Housing - supplementation	87.4	88.5	89.7	91.7	357.3	953.8
Jezzine Barracks	20.5				20.5	20.5
subtotal	869.8	1,477.8	1,758.4	1,574.6	5,680.6	10,311.4
Total New Measures	1,843.5	1,967.9	2,045.2	1,821.7	7,678.2	14,043.5
Adjustments						
Reprogramming of approved MCE	-615.0		631.0		16.1	16.1
Further reprogramming	-378.0	-230.0	-559.3	37.8	-1,129.4	109.0
Price indexation	380.0	419.1	458.6	516.9	1,774.6	5,988.7
Foreign exchange	-78.6	-102.2	-110.3	-107.9	-399.0	-1,230.7
DFAT Transfer	0.025				0.025	0.025
DVA Transfer	-0.8	-0.7	-0.4	-0.4	-2.2	-2.2
Transfer to DMO - industry skilling	-20.5	-20.8	-21.0	-21.5	-83.8	-199.1
Transfer to DMO - industry policy	-26.3	-25.7	-24.7	-21.3	-98.1	-163.7
Special Account interest	0.028				0.028	0.028
Operational reimbursement - Afghanistan	27.3				27.3	27.3
Operational reimbursement - Iraq	4.4				4.4	4.4
Adjust error in post 2010-11 funding						-422.8
Total Adjustments	-707.4	39.8	373.9	403.6	110.0	4,127.1
TOTAL	1,136.1	2,007.7	2,419.1	2,225.3	7,788.2	18,170.6

Numbers may not add due to rounding.

- six new bonuses and allowances targeted at selected personnel in critical roles and with critical skills (\$226 million)
- increased Navy Seagoing and Submarine Service Allowances subject to independent Defence Force Remuneration Tribunal consideration (\$113 million)
- reform of Defence Force Recruiting so that a greater number of applicants can be processed more quickly (\$371 million)
- a new Military Gap Year enlistment programme for Year 12 (or equivalent) completers (\$306 million)

In this budget, the Government provided an extra \$2.1 billion over 10 years to further increase the number of people who join and remain in the military by:

- reforming the ‘other ranks’ pay scales by introducing restructuring similar to that already implemented for officers (\$585.4 million)
- enhancing financial assistance for home ownership, through a more attractive subsidy for interest payments, the value of which increases with the length of service (\$863.8 million)
- building on the existing Royal Australian Navy Sea Change program by enhancing fleet support for ships whilst in port and improving remuneration for personnel on submarines (\$86.5 million)
- increasing funding for marketing and branding activities (\$227.8 million)
- identifying potential students for direct entry into ADF technical trade training and sponsoring younger students to commence technical trade training before ADF entry (\$71.0 million)
- delivering professional development opportunities to ADF medical officers, comparable to those in the civilian health workforce (\$12.1 million)
- expanding the number of cadets and cadet units and improving their experience through a youth development program conducted in a military environment (\$100.0 million)
- introducing a new transition service to help manage the separation process of those personnel considering leaving the Services, and providing independent financial advice for personnel to better enable them to make informed decisions (\$124.6 million).

We explore the problem of attracting and retaining adequate numbers of personnel in the ADF in Section 7 of this brief.

Deployments

The PBS provides a good discussion of the supplementation provided to cover the net additional cost of deployments. Briefly, \$389 million has been provided to continue operations in Iraq for another year, \$703 million for operations in Afghanistan for another two years, and \$135 million for a one-year extension of operations in Timor Leste. A further \$52 million has been provided over four years to continue coastal surveillance operations. See Section 6 of this brief for more on the cost and composition of ADF deployments.

Intelligence

In a continuation of comprehensive post-9/11 improvements to Australia's security and intelligence capabilities, \$382 million has been provided over ten years to Defence as follows:

- \$307.2 million for improved intelligence collection, processing and dissemination capabilities
- \$75 million for the Defence Signals Directorate to increase the security and protection of government communications and information systems.

Super Hornet capability

The government will provide \$6.6 billion over 13 years (including \$2.6 billion over nine years from 2011-12) to acquire 24 F/A-18F Super Hornet multi-role aircraft, weapons and associated support, and to provide for personnel and operating costs to support the capability in service. The acquisition of the Super Hornet aircraft, weapons, facilities upgrades and training will cost \$3.9 billion and the remaining \$2.7 billion will go to personnel and support costs. According to the budget papers, the purchase will ensure there is no gap in air combat capabilities with the withdrawal of the F-111 aircraft in 2010. This measure includes \$58.6 million in capital funding for related infrastructure.

The story behind this multi-billion purchase is an interesting one. As late as last year, Defence was decidedly sanguine about the prospects of maintaining Australia's air combat capability without a bridging aircraft – at least in its advice to the Parliament. In fact, in November 2006, the Chief of Air Force advised a Senate committee:

The government has announced that, if the JSF were to slide substantially – and, once again, I stress we are seeing no indications of that – the purchase of a bridging fighter would be the last resort. There are strategies before we would get to that level of possibility extending the F-111 and looking to upgrade more centre barrels on the FA-18 hornets.

Even today, Defence's official position is that it remains confident that the JSF will be delivered when needed. Such confidence, however, is not shared by the Minister. According to media reports; in October last year, the Minister argued in Cabinet that the complexity and risks of the JSF program, coupled with the limited capability and finite life of the F-111, demanded a bridging aircraft purchase. They concurred, and \$6.6 billion was committed.

The projected operating costs of the new Super Hornets warrants comment. When the decision to accelerate the retirement of the F-111 fleet was made back in the Defence Capability Review in 2003, much was made of the rapidly increasing cost of operating the aging fleet. Subsequently, personnel and operating cost savings from the F-111 retirement were programmed into the budget for next decade at around \$143 million per year. This year's budget funded Super Hornet personnel and operating costs at around \$270 million per year for the same period. In each case there is a fleet of around 24 aircraft. So while it may be true that aging platforms get more expensive to operate with time, they appear to cost substantially less to operate than new ones. In part, this is due to the addition of around 480 personnel for this capability (counter-balanced by the loss of a similar number due to the withdrawal of the F-111 in 2010).

Logistics – additional funding

According to the Defence Minister's press release entitled; *Funding of \$4 billion for ADF Logistics Support*, the government 'has provided \$4 billion over ten financial years to ensure that ADF war fighting capabilities are maintained at high levels of preparedness'. However, the PBS only makes reference to \$1.8 billion being made available for logistics in this budget. Treasury Paper 2 further confuses the situation by saying that the 'Government will provide \$4.0 billion over ten years (including \$2.2 billion over six years from 2011-12) to address logistics funding requirements' but then goes on to say that 'funding of \$2.2 billion has already been included in the forward estimates', thereby implying a total of \$4.4 billion.

What we know for certain is that \$1.8 billion, and only \$1.8 billion, has been appropriated for additional defence logistics in this budget. The figure of \$4.0 billion must include funds previously announced and/or carried forward from previous announcements.

According to the budget papers, the \$1.8 billion will alleviate a range of equipment obsolescence and inventory shortfall issues and enable enhanced maintenance, refits, and upgrades of equipment across the Army, Navy and Air Force. It will do so by augmenting logistics and support funding for a range of platforms and equipment, including: Collins class submarines; ANZAC class frigates; Hercules transport aircraft, Hawk Lead-in Fighter training aircraft, Army B-class vehicles, Army Black Hawk helicopters. Comparison of the logistics supplementation received for 2007-08 (\$108 million) with that redirected at Additional Estimates (\$145 million) implies that a significant slice of new logistics costs have been absorbed by Defence – given the quanta, probably that associated with the Lead-In-Fighter amounting to around \$180 million over the forward estimates. We explore the adequacy of logistics funding in Section 4 of this brief.

C-17 – personnel and operating costs

The government will provide \$1.3 billion over ten years to maintain and operate the four C-17 heavy airlift aircraft being purchased at a cost of \$2.2 billion dollars (announced in the 2006-07 budget). The cost of this measure will be partially offset by \$103.7 million, in the years 2007-08 to 2009-10, in savings from personnel and operating costs for now-delayed Defence Capability Plan projects. In total, the acquisition and operation of the four aircraft will cost \$3.5 billion across the decade.

On the basis of personnel expenses in 2010-11, around 80-90 additional full-time military personnel will be added for this capability.

Other measures

Over the next decade, \$954 million will be provided for the Department of Defence to meet increased costs payable to Defence Housing Australia (DHA). This follows from the application of the government's competitive neutrality policy to DHA in 2001. Another \$135 million has been provided over four years for enhanced protective security for Defence property and personnel – a continuation of measures commenced in the aftermath of 9/11. Finally, the government will provide up to \$24.5 million in 2007-08 in association with its proposed gift of the majority of the historic Jezzine Barracks and Kissing Point site to Townsville City Council for community use and heritage protection.

Funding adjustments

Reprogramming of Major Capital Equipment

More than \$1,780 million of planned capital investment in new equipment has been delayed. This includes \$615 million deferred from 2007-08 to 2009-10 and \$1,165 million delayed from 2007-08, 2008-09 and 2009-10 to the years beyond.

Unfortunately, this means that \$1.8 billion of planned capability will now arrive late. This comes on top of \$390 million deferred in the 2006-07 PAES. We explore the possible causes and risks of further delays in Section 7 of this Brief.

Errors post 2010-11 funding

Funding for the period post-2010-11 have been reduced by \$423 million to account for an error in last year's budget. No explanation is given but the pattern of adjustments suggests that an incorrect out-turning deflator was the cause.

Price and exchange

Defence will receive an additional \$1,775 million over four years (\$5,989 million over ten years) as a price adjustment, and will hand back \$399 million (\$1,231 million over ten years) for foreign exchange movements. These adjustments maintain the buying power of the Defence dollar.

Transfers to DMO

The department will transfer \$164 million over ten years to DMO to enable the implementation of the government's Defence Industry Policy Review, and \$199 million over the same period for the government's Skilling Australia's Defence Industry initiative.

Operational reimbursement

Defence receives supplementation for the net additional cost of operations on a no-win no-loss basis from the government. In 2007-08 adjustments of \$27.3 million for Afghanistan and \$4.4 million for Iraq will be made on the basis of additional costs incurred in 2006-07.

Other adjustments

Minor interdepartmental transfers from the Department of Foreign Affairs and Trade (\$0.025 million) and to the Department of Veteran's Affairs (\$2.2 million) will be made.

Other information provided

The remainder of Chapter 2 of the PBS contains a range of interesting information including:

- ***Status of White Paper Funding*** [PBS p. 27–30] which we explore Section 4 of this brief.
- ***Funding for Operations*** [PBS p. 30–35] which we explore in Section 6 of this brief.
- ***2007-08 Financial Statements*** [PBS p. 36–47] which details the changes from the previous estimate (2006-07 PAES) for the 2007-08 financial statements.
- ***Payments to the DMO*** [PBS p. 48–51] which we explore later in this section when we discuss DMO.

- ***Discretionary Grants*** [PBS p. 51–53] which details funding to various organizations including the Royal United Services Institute of Australia and the Submarine Institute of Australia.
- ***Indigenous Programs*** [PBS p. 53–54] which describes various programs designed to encourage and enhance participation by indigenous Australians in Defence activities/employment, and the Army Aboriginal Community Assistance Program.
- ***Savings and Efficiency Measures*** [PBS p. 54–57] that describes various savings and efficiency measures underway in Defence. We explore these issues in detail in Section 3 of this brief.
- ***Cost Recovery and Purchaser Provider Arrangements*** [PBS 58–64] sets out the various internal and interdepartmental arrangements that Defence is a party to.

Section 2.3: Capital Investment Program [PBS Chapter 3]

The Capital Budget section of the PBS describes Defence's plans for capital investment in new equipment, upgrades, facilities and other non-military capital items. It's formally described in accounting terms in the Capital Budget Statement in Table 7.5 on page 221 of the PBS, although that is not very revealing.

Capital Investment Program [PBS p.65–98]

Four years ago, Defence began disclosing details of its capital investment program. It has done so again this year in Table 3.1 page 68, which we have reproduced in part in Table 2.3.1. Foreign exchange adjustments have been made across the forward estimates so that a foreign exchange provision is no longer necessary. Unfortunately, the projected result for 2006-07 has not been included in this years PBS so we have had to use the revised estimate from the 2006-07 PAES. Note that 'Other Capital' has consistently exceeded budget estimates by a large margin across the last three years, and that 'Capital Facilities' will probably do so in 2006-07. The former is due in part to unbudgeted purchases arising from urgent operational demands.

Table 2.3.1: The Capital Investment Program (million \$)

\$ million	2004-05 actual budget	2005-06 actual budget	2006-07 revised budget	07-08	08-09	09-10	10-11
Not Yet Approved Major Capital Equipment (DCP)			78.1 277.4	512.5	1,381.7	2,616.2	3,898.8
Approved Major capital Equipment	3,322.5 2,912.7	3,888.4 3,747.8	4,410.7 4,457.6	4,294.9	4,759.2	4,227.9	2,972.1
Subtotal actual - budget	3,322.5 2,912.7 +409.8	3,888.4 3,747.8 +140.6	4,488.8 4,735.0 -246.2	4,807.4	6,140.9	6,844.1	6,870.9
Capital Facilities Approved & Unapproved	393.3 468.7	430.3 447.1	624.9 491.3	643.6	745.8	961.0	919.3
Other Capital	602.1 472.5	722.4 582.7	813.3 527.9	768.8	694.0	671.9	537.7
Total Capital Investment Program	4,317.8 3,853.9	5,041.1 4,777.6	5,927.0 5,754.2	6,219.8	7,580.7	8,477.0	8,327.9

Source: 2007-08 PBS Table 3.1, DAR, 2006-07 PAES Table 3.1.

There are four components to the Capital Investment Program:

Not Yet Approved Major Capital Equipment or Defence Capability Plan (DCP)

This is the remaining unapproved projects from the 2006 Defence Capability Plan, made up of all the Major Capital Equipment projects that have not yet received second pass approval from government. Major Capital Equipment projects are generally of more than \$20 million value and predominantly involve the purchase of military equipment, (previously called 'Pink Book' projects). The preparation of these projects for approval is the responsibility of the Chief of the Capability Development Executive. Once approved, projects pass to the DMO for delivery.

Approved Major Capital Equipment: Projects already approved by government and under way. (Previously called the 'White Book'). The delivery of these projects is the responsibility of the Defence Materiel Organisation.

Capital Facilities: Approved and Unapproved Capital Facilities Projects, including everything from new barracks to upgrades of existing facilities. These projects are the responsibility of the Infrastructure Division in the Defence Support Group.

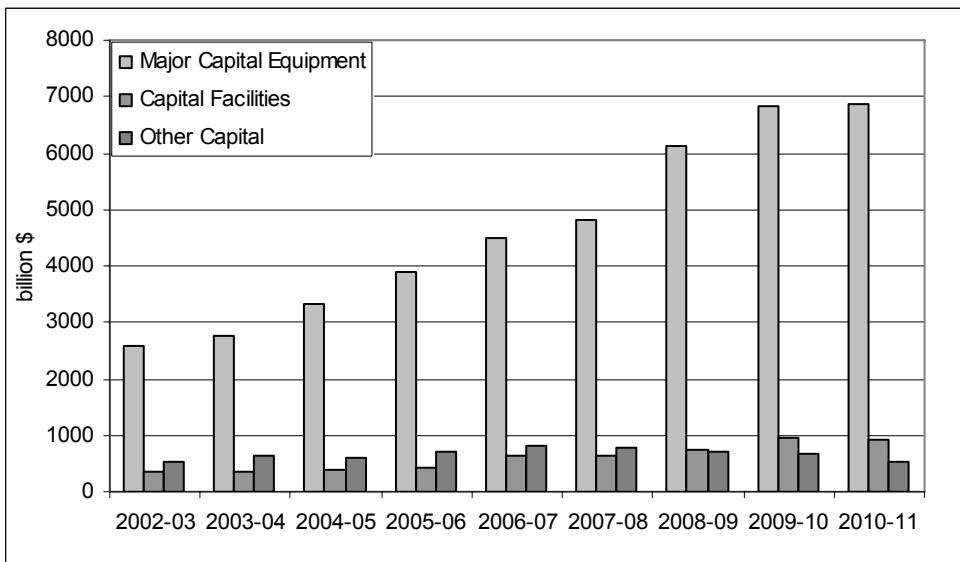
Other Capital: including Minor Capital Equipment (projects costing less than \$20 million), repairable items, non-capital facilities, plant and equipment, and software and intangibles.

This year the PBS includes a useful graph (Chart 3.1, p.69) of the capital investment program showing its various components. Under current plans, a total of \$74.6 billion will be spent on capital investment over the next decade (compared with \$61 billion last year). In part, the increase can be attributed to the Super Hornet acquisition and capital projects for the Enhanced Land Force initiative. The remainder is due to moving another year into the DCP program of growing investment.

What are the trends in the Capital Investment Program?

The trend across the forward estimates is for an increase in the Capital Investment Program from \$6.2 billion in 2007-08 to \$8.2 billion in 2010-11, in nominal dollars. Within these amounts, expenditure on Capital Facilities and Other Capital fluctuates while the spending on major capital equipment grows (Figure 2.3.1). As shown, after the latest reprogramming of capital investment funds and the Super Hornet and C-17 decisions, there is significant near-term growth in spending on major capital equipment planned. In fact, the single-year jump in major capital equipment spending from 2007-08 to 2008-09 is \$1.33 billion, or 27%. This and subsequent increases will undoubtedly test the capacity of DMO and defence industry to deliver (see Section 2.7 of this brief for further discussion of DMO performance).

Figure 2.3.1 Planned trends in the Capital Investment Program



Source: 2007-08 PBS and 2006-07 PAES Table 3.1 and previous Defence Annual Reports

Operating Component of Capital Investment

Not all of the money in the Capital Investment Program actually represents capital investment. There's also an Operating Component of Capital Investment that includes those funds treated as expenses in the process of acquiring the capital equipment or

facilities. This includes project office costs, studies, research and development, travel, professional service providers and other overheads.

The operating component of capital investment is not evenly spread across the four components of the capital program, nor is it constant in time (see Table 2.3.2). The 2003-04 Defence Annual Report (DAR) said that the mix of funding will continue to change reflecting project throughput and the individual circumstances for each project. The operating component of the major capital equipment program is probably planned to fall away quickly because of the number of very large projects anticipated.

Table 2.3.2: Percentage of operating component in Capital Investment Program

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Major Capital Equipment	9.8%	13.6%	17.9%	13.9%	10.6%	11.4%	9.2%	8.3%	6.5%
Capital Facilities	0.0%	4.8%	14.8%	11.7%	12.5%	16.0%	9.7%	4.7%	5.6%
Other Capital	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: various DAR, 2006-07 PAES and 2007-08 PBS

The operating component of capital investment provides a truer representation of how project funds are spent.

Relationship with the Capital Budget

It's important not to confuse the Total Capital Investment Program [PBS Table 3.1 p. 68] with the Total Capital Payments given in the Capital Budget [Table 7.5 on page 221 of the PBS]. The difference is the operating component of capital. The two quantities are reconciled in Table 2.3.3 below.

Table 2.3.3: Total Capital Investment Program ≠ Total Capital Payments

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Total Capital Investment Program a	3,470	3,360	4,317.8	5,041.1	5,927.0	6,219.8	7,580.7	8,477.0	8,327.9
Operating Component of Capital b	278	392	602.1	592.0	625.5	652.8	634.2	611.3	494.5
Total Capital Payments a - b	3,191	2,968	3,715.7	4,449.1	5,301.5	5,567.0	6,946.5	7,865.7	7,833.4

Source: various DAR, 2006-07 PAES and 2007-08 PBS Table 3.1

What's all this about reprogramming and rescheduling?

In the 2006-07 PAES \$390.4 million has been deferred from 2006-07 into 2007-08 and 2008-09 because of problems with the AEW&C and M113 upgrade projects. Now, in the 2007-08 budget, a *net* total of \$1.14 billion dollars of capital investment has been deferred to beyond the forward estimates. This was not because of stringency on the part of government, but rather, because of delays in approving and delivering projects. This is the latest in a long line of adjustments to the capital investment program that are detailed in Table 2.4 of the PBS and discussed in Sections 4 and 7 of this Brief.

Unapproved Major Capital Equipment Program [PBS page 70] and Approved Major Capital Equipment Program [PBS page 73]

The PBS contains a list of DCP projects scheduled for approval in 2006-07 [Table 3.4 and 3.5, p. 71– 72]. The approved capital equipment program is mainly, but not exclusively, the responsibility of DMO. As a result, most of the information on approved projects can be found in the DMO section of the PBS [page 239] including details of the top 30 projects. To ensure a coherent discussion of these topics, we've collected them together in Sections 2.7, 4 and 7 of this Brief. Nonetheless, an explanation of the somewhat arcane Table 3.6 of the PBS [page 74] is necessary at this point.

To start with, PBS Table 3.6 makes clear that other parts of Defence – the Chief Information Officer, ADHQ and DSTO – are engaged at the margins in purchasing major capital equipment. Of more interest in Table 3.4, is the just over \$1 billion of ‘slippage’ in the Top 30 Projects. This represents an *internal* mechanism by which DMO calculates the practical level of spending on the basis of ‘over-programming’ the spending profile. The key point is that this is an internal process that does not represent a delay in the projects as occurs with reprogramming.

Facilities Projects [PBS pp.74–97]

The PBS lists 30 approved Capital Facilities Projects. This includes 15 major projects of more than \$15 million with a total value \$1.34 billion, and 15 medium projects of between \$25,000 and \$15 million with a total value \$65.3 million. In the 2007–08 Budget the government has foreshadowed 35 new major capital works projects for parliamentary consideration and 23 medium capital works projects. These are listed in Table 3.9 and Table 3.12 of the PBS respectively.

Expenditure on facilities projects in 2007-08 is planned to be \$644 million compared with \$625 million in 2006-07. It's noteworthy that the projected result for 2006-07 is \$134 million, or 27%, above the budget estimate of \$491 million.

Table 3.8 of the PBS lists the approved major facilities projects. The largest such projects are the RAAF Amberley Redevelopment (\$286 million), the development of Special Forces working accommodation and base redevelopment at Holsworthy (\$208 million) and the redevelopment of RAAF Williamtown (\$129 million).

The PBS also mentions [p. 87] the Private Financing arrangements being put in place for the \$339 million HQ Joint Operations Command to be built in Bungendore and three other accommodation projects. In addition, Table 3.10 on page 89 of the PBS lists 17 future possible private financing initiatives that are under development.

Defence’s program of approved and yet-to-be-approved facilities projects is called the Green Book. It used to be found on the Defence web site but no longer appears to be publicly available.

Other Capital Purchases [PBS page 78]

Other capital purchases include Minor Capital Equipment, Repairable Items and Other Plant and Equipment. Defence plans to spend \$769 million on other capital purchases in 2007-08 [Table 3.13, PBS p. 95].

Capital Sales and Receipts [PBS page 95]

The capital budget is funded in part through the proceeds from sales of property, plant and equipment and other capital receipts. On a year by year basis some or all of this money is returned to the government through a capital withdrawal. This is taken into account in determining the appropriations necessary to deliver Total Defence Funding.

Prior to 2002-03, the government set ambitious goals for the sale of Defence assets that were not met, mainly in the area of property sales. However, in 2002-03 the government planned to sell \$660 million worth of buildings and property and achieved a credible \$578 million against that target even after deciding not to proceed with the sale of the Russell Office complex.

In 2003-04, the estimate for total asset sales was \$306 million. But the final result was only \$184 million (including the unbudgeted sale of \$44 million worth of housing). The reasons given in the annual report for the shortfall were government decisions on property sales (-\$117 million), overestimates of miscellaneous sales (-\$36 million) and foreign exchange and overestimate of Specialist Military Equipment Sales (-\$13 million). Since then, the planned amount to be recouped through assets sales has been falling.

Table 2.3.4 shows the recently planned and achieved assets sales (including both property and other assets) within the Defence Capital Budget. The target of only \$57 million in sales for 2007-08 represents the diminished number and value of properties going up for sale compared with recent years, as well as the transfer of accounting for commercial vehicle sales onto DMO's financial statements. Future sales of Defence properties are unlikely to be anywhere near as high in value as they were several years ago. In effect, the program of divestment set out in the Defence Reform Program has largely concluded.

Table 2.3.4: Capital Budget Asset Sales (\$ million)

	Budgeted	Achieved	Shortfall
DRP to June 2000	—	77	—
2000-01	820	87	733
2001-02	1023	199	824
2002-03	700	632	68
2003-04	306	184	122
2004-05	231	143	88
2005-06	95	108	-13
2006-07	38	73	-35
2007-08	79		
2008-09	140		
2009-10	44		
2011-12	38		

Source: Defence Annual Reports, 2006-07 PAES, 2007-08 PBS

Note: 2006-07 result revised estimate only.

Section 2.4: People [PBS Chapter 4]

Overview [PBS p. 99]

The Overview of the PBS ‘People’ chapter outlines a range of initiatives to improve the management of personnel from a business and planning perspective, and to enhance the development, care, recruitment and retention of personnel. Most of these initiatives began in 2001-02, when \$500 million was allocated over five years to deal with high priority personnel issues. A handy summary of the initiatives can be found on p. 214 of the 2005-06 DAR. The spending extends across 28 separate initiatives, all of which are laudable and most of which are inexpensive. In practice, the bulk of the money has been concentrated into just five programs: ADF rental allowances for single members (\$277 million); Reserves enhancement (\$70 million); improved living-in accommodation (\$44 million); Cadets enhancement (\$30 million) and new locality allowance (\$17 million).

In last year’s budget, there were two additional personnel measures. First, \$182 million was provided over four years for enhanced Reserve remuneration. Second, \$194 million was allocated to improve recruitment and retention. Unfortunately, as we shall see, these and previous measures have not been enough; the ADF continues to struggle to recruit and retain enough people.

Late last year, the government allocated another \$1 billion for recruitment and retention over ten years, and in this budget a further \$2.1 billion has been made available. These measures are explained in Section 2.2 of this brief, and the prospects for success or failure are explored in Section 7.

How big is the workforce?

The establishment of DMO as a prescribed agency complicates the reporting of personnel numbers especially given the different accounting for civilian and military personnel and costs that has been adopted. We’ve collected together the figures for the entire workforce from the Defence section on page 99 of the PBS and the DMO section on page 307. (We examine the DMO workforce in Section 2.7 of this brief.)

Table 2.4.1: Workforce summary for Defence plus DMO (average funded strength)

	00-01 actual	01-02 actual	02-03 actual	03-04 actual	04-05 actual	05-06 actual	06-07	07-08	08-09	09-10	10-11
Navy	12,396	12,598	12,847	13,133	13,089	12,767	12,700	12,899	12,219	13,659	13,743
Army	24,488	25,012	25,587	25,446	25,356	25,241	25,486	26,126	26,978	27,458	27,826
Air Force	13,471	13,322	13,646	13,455	13,368	13,143	13,290	13,480	13,976	14,104	14,131
TOTAL	50,355	50,932	52,080	52,034	51,813	51,151	51,476	52,505	54,173	55,221	55,700
Active Reserve	19,835	18,868	19,620	20,488	19,275	19,464	18,550	18,200	18,250	18,250	18,250
High Readiness	-	-	-	-	-	-	1,000	1,330	1,620	2,080	2,460
Total Reserve	19,835	18,868	19,620	20,488	19,275	19,464	19,250	19,530	19,870	20,330	20,710
Defence	16,292	16,819	18,385	18,303	13,390	13,577	14,500	14,658	14,641	14,630	14,650
DMO	-	-	-	-	4,363	4,502	4,961	5,277	?	?	?
Civilian	16,292	16,819	18,385	18,303	17,753	18,079	19,461	19,935	?	?	?
PSP	-	-	2,311	1,878	1,906	1,712	1,475	1,472	?	?	?

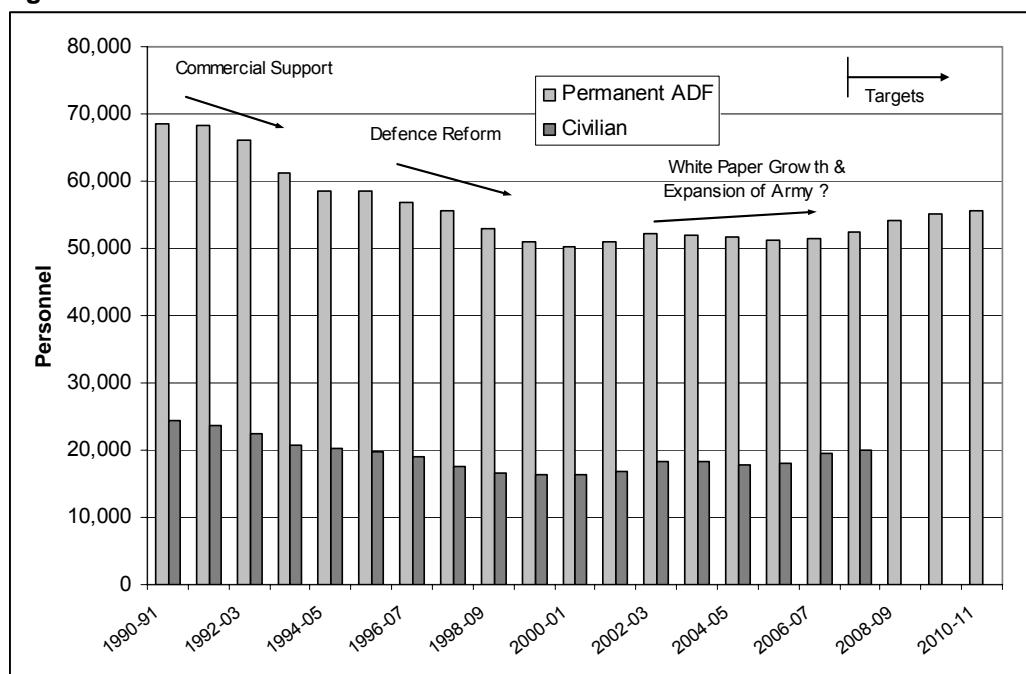
Source: Defence Annual Reports, 2007-08 PBS.

In 2007–08 Defence will be funded to maintain an average of around 52,505 full time military personnel, 19,935 civilians (including 5,277 in DMO) and 19,530 Reservists. In addition, there will be 1,472 Professional Service Providers, including 301 in DMO.

How did we get to this point?

During the decade of the 1990s, ADF numbers dropped from around 70,000 to 50,000 permanent personnel, as shown in Figure 2.4.1. Over the same period civilian numbers dropped from around 24,400 to 16,300.

Figure 2.4.1 Historical Defence Workforce



Source: Defence Annual Reports, 2001-02 Defence Budget Brief and 2007-08 PBS

The bulk of these reductions were due to outsourcing under the Commercial Support and Defence Reform programs (although around 5,600 permanent ADF positions were transferred to the Reserve by the 1991 Force Structure Review). In fact, the initial goal of the Defence Reform Program was to reduce the strength of the ADF to 43,500 but this was soon revised up to 50,000, thereby arresting the decline. This was done by re-directing DRP savings to buy-back the ADF positions, the goal being to redirect personnel from support areas to the combat force.

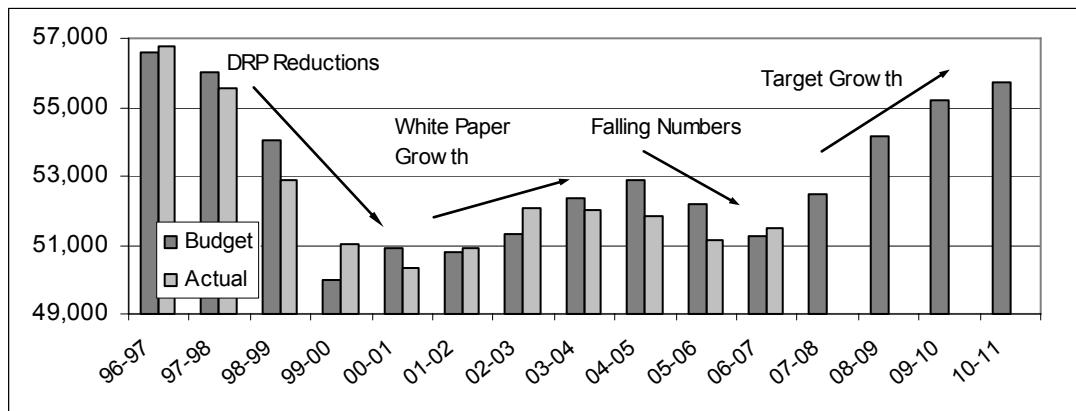
The 2000 White Paper then set permanent ADF numbers on a growth path. Until 2003, the target was to build a force of ‘around 54,000’ permanent ADF personnel by 2010. However, the government accepted the recommendations of the 2003 Defence Capability Review, which will see some capabilities withdrawn from service in the next decade. As a result, the 2004-05 PBS [p.5] referred to ‘continued growth of the ADF towards 53,000’. However, subsequent budgets added additional personnel for a range of initiatives including, most especially, the expansion of the Army. We will do our best to explain this revised figure later in this section. According to the PBS, the current target strengths for the permanent ADF are 55,700 by 2010-11 and around 57,000 by 2016-17.

What are the recent trends?

Permanent ADF Numbers

In 2003-04 the year-on-year change in the size of the permanent ADF was negative for the first time since 2000-01. In fact, although Navy grew by 286 personnel compared with the previous year, Air Force and Army fell by 191 and 141 personnel respectively. (Actually, Air Force was budgeted to fall by 246 positions due to contracting out, so that their result softened the blow.)

Figure 2.4.2 Permanent ADF personnel: 1996-97 to 2010-11 (average funded strength)



Source: Defence Annual Reports, 2001-02 Defence Budget Brief and 2007-08 PBS

The net result was that the year-on-year strength of the ADF fell by 46 positions compared with a budget target of an extra 261 personnel. Most worryingly, Army's average funded strength for 2003-04 was fully 495 positions below target.

Unfortunately, these adverse trends flowed on into 2004-05 with the funded strength of 51,813 more than a thousand below the target of 52,872 personnel at year's end. This included a shortfall of 78 in Navy, 679 in Army and 302 in Air Force. The net result was that, once again, the ADF shrank – this time by 221 personnel.

2005-06 was not much better. The result of 51,151 was once again more than a thousand below target including a shortfall of 442 in Navy, 243 in Army and 355 in Air Force. Worse still, the actual drop in ADF numbers was more serious – the ADF shrank by 662 personnel.

In 2006-07, the government set a more modest target of adding only an extra 102 personnel. Encouragingly, they achieved this and more. The projected result for 2006-07 is for the ADF to have grown to 51,476 representing an increase of 325 on the previous year. But it was not all good news; while Army has grown by 245 and Air Force by 147, Navy's numbers have fallen by 67 in the past year. And even without the setback for Navy, the net result is slight compared with the targets now in place.

Over the next four years the permanent ADF is planned to increase by around 4,220 people including: Navy (1,040); Army (2,340) and Air Force (840). Given recent trends, achieving the required average growth of 1,000 people per year will not be easy.

The annual change in ADF strength is the difference between the numbers of people recruited into and separated from the force (typically around 5,000 in each case).

Since the planned change in strength is usually no more than 1000, the outcome is finely balanced. With this in mind, we turn now to examine ADF recruitment and separations.

Recruitment

Table 2.4.2 shows the percentages of recruitment targets that have been met over the last eleven years. Following solid improvements earlier this decade, which saw the rate grow from 76% to 93% in 2001-02, performance dropped back to the mid-80% in 2002-03 and 2003-04 before deteriorating to 80% in 2004-05 and recovering to 84% last year.

Recruitment results vary from Service to Service, and that within each Service skilled personnel (like technicians and trades people) are particularly hard to recruit. This no doubt reflects the very buoyant labour market and national skilled worker shortage that Australia is experiencing. As the data shows, Navy has the most serious problem at the moment.

Table 2.4.2: Percentage of recruitment targets met

	95/96	96/97	97/98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06
Navy	98%	92%	98%	76%	57%	74%	85%	84%	86%	73%	72%
Army	99%	98%	94%	78.5%	83%	79%	100%	79%	84%	81%	98%
Air Force	86%	93%	101%	90.5%	83%	88%	87%	94%	90%	91%	88%
ADF	96%	94%	97%	80%	76%	80%	93%	84%	86%	80%	84%

Source: Defence Annual Reports and Defence submission to the FAD&T References Committee inquiry into ADF recruitment and retention, May 2001.

Retention

Table 2.4.3 shows the percentages of ADF personnel who separated from full-time military service over the last nine years. It shows separation rates reaching a plateau after falling slowly for three years. Some care must be taken with this data because figures for earlier years were impacted by the deliberate reduction in the size of the ADF between 1997 and 2001 under the Defence Reform Program. Nevertheless, separation rates from 2001-02 to 2004-05 were better than in 1995-96 before the cuts to personnel commenced.

Table 2.4.3: ADF separation rates

	95/96	96/97	97/98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06
Navy	13.0%	11.5%	11.1%	12.6%	13.3%	13.2%	11.5%	11.6%	10.1%	12.2%	11.3%
Army	12.5%	10.4%	10.9%	12.9%	13.0%	13.2%	11.5%	9.8%	11.0%	12.7%	12.4%
Air Force	9.0%	9.0%	10.0%	11.9%	11.6%	15.6%	10.4%	8.1%	7.4%	8.4%	8.5%
ADF	11.6%	10.3%	10.7%	12.6%	12.7%	13.8%	11.2%	9.8%	9.9%	11.5%	10.7%

Source: Defence Annual Reports and Defence submission to the FAD&T References Committee inquiry into ADF recruitment and retention, May 2001.

In summary, the plan to grow the ADF stalled in 2002-03 as adverse recruiting trends began to outweigh favourable retention figures. As a consequence, personnel numbers fell for three years in a row. This year's improvement is, at best, a modest turn around.

The personnel situation has become a serious threat to the government's plans for Defence (see Section 7 of this brief for a fuller discussion). Briefly, though, it's worth remembering that all the Services have shortages in specific skill categories and rank levels. Given the overall drop in numbers, it's likely that these specific shortages are becoming acute. Moreover, it takes a long time to rectify shortages once numbers fall below target because it takes years for personnel to be trained and gain sufficient experience to take up jobs at more senior levels even among the other ranks.

Assuming that the measures the government has taken are adequate (and that is far from assured) it will take some time before the workforce is back in shape.

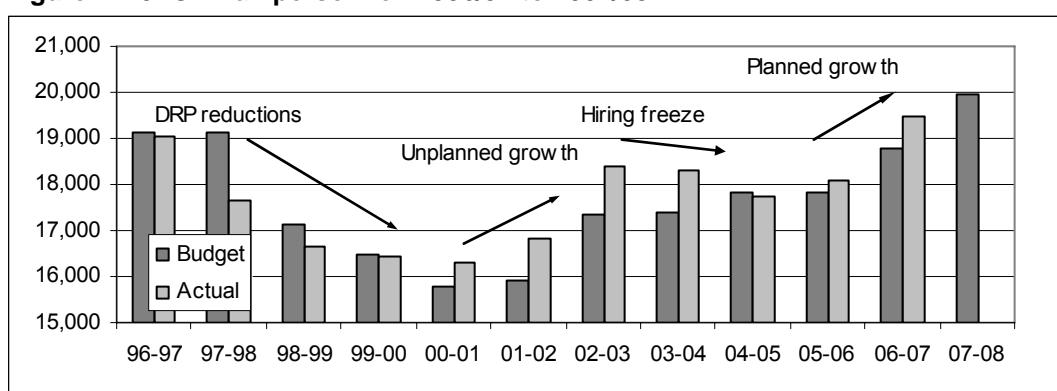
Civilian Numbers

Although civilian numbers fell quickly under the Defence Reform Program they grew back very rapidly in the first two years of White Paper implementation – three times more quickly than military numbers grew. What is more, the growth was largely unplanned, with the size of the civilian workforce in 2001-02 exceeding budget estimates by 5.8% and similarly in 2002-03 (6.1% in excess). However, in January 2003 a civilian hiring freeze was imposed within Defence after it became clear that the projected number of civilian personnel would exceed the revised estimate given less than two months earlier.

In April 2003, the freeze was lifted but direction was given to maintain civilian numbers at current levels. The move to stem the rise in civilian numbers was understandable given that additional personnel must be funded from within current Defence funding levels unless linked explicitly to a specific government-funded initiative. In the 2003-04 budget, a programmed reduction plan was set in place to reduce civilian numbers by 1,008 from 18,385 to 17,377.

However, the actual result for 2003-04 came out at 18,303 only 82 positions below the previous year's figure due, mainly, to a series of government initiatives but also because of an extra 349 new civilian positions unrelated to government initiatives or more efficient practices.

Figure 2.4.3: Civilian personnel: 1996/97 to 2007/08



Source: Defence Annual Reports, 2001-02 Defence Budget Brief and 2007-08 PBS

Fortunately, in 2004-05 and 2005-06 personnel numbers were more firmly under control with a resulting close alignment of budgeted and actual figures. In 2006-07, civilian personnel numbers were set to rise by 950 due to civilianisation of military positions (199), backfilling of vacant military positions (253), new 2006-07 government initiatives (33), implementation of the Military Justice Inquiry (27), PSP substitution (20), recovery of civilian personnel numbers (102) and

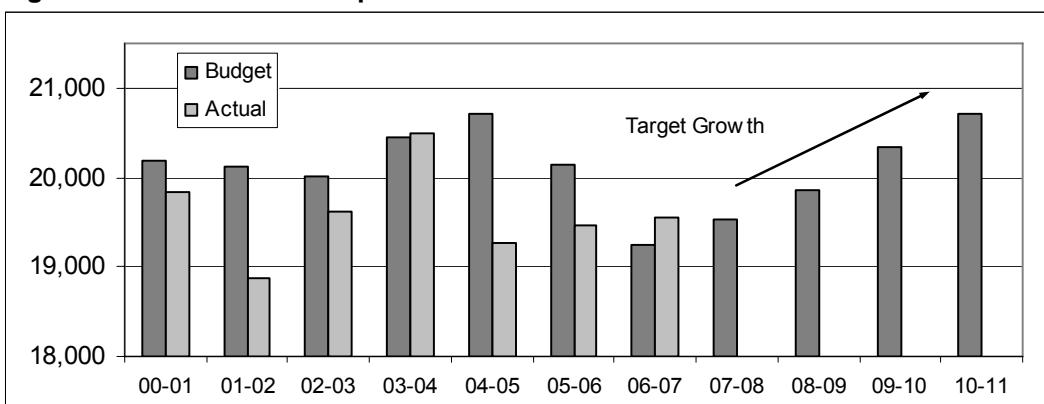
financial/warehouse administration (159). With the exception of the last category, all of the new positions were related directly to either new government initiatives or the creation of a more efficient workforce. However, the projected result for 2006-07 is for a total increase of 1,382 personnel, fully 432 above the budget estimate. Whatever constraints were imposed in 2004-05 and 2005-06 appears to have disappeared.

Civilian numbers are set to rise by another 474 positions in 2007-08. Some of these new positions are, however, the back-filling of vacant military positions particularly in DMO, and others can be ascribed to government initiatives or the increased volume of work in DMO as the investment and sustainment budget grows.

Reserve numbers – at turn around?

Reserve numbers increased by 752 personnel between 2001-02 and 2002-03, and 868 between 2002-03 and 2003-04. This compared favourably with the decline of around 1000 between 2000-01 and 2001-02. However, in 2003-04 numbers fell by 1,213 and by another 125 in 2005-06 due to lower Army recruiting. Consistent with this, the Army output for Protective Operations that employs most of the Reserve Personnel mentioned personnel shortages as a problem in both the 2003-04 and 2004-05 DAR. Encouragingly, Reserve numbers increased modestly in 2005-06 and 2006-07.

Figure 2.4.4 Active Reserve personnel: 2000-01 to 2005-06



Source: Defence Annual Reports and 2007-08 PBS

Last year's budget included \$182 million over four years for improved Reserve remuneration. This was related, in part, to the decision to create a 2,800 strong high-readiness reserve force as part of Hardening and Networking the Army (HNA). Air Force will also have a high-readiness component.

What is the long-term target for the permanent ADF?

To understand the target strength for the ADF requires some history. The starting point is the original post Defence Reform Program goal of a 50,000 strong ADF. A number of things have happened since then. First, in late 1999 the Prime Minister announced that the ADF would grow by 3,555 personnel to bolster Air Force's deployable capability and build six full strength permanent Army battalions (up from four). Second, a series of post-9/11 counter-terrorism budget initiatives added to Army's strength. Third, the 2003 Defence Capability Review cut capability from the Navy and Air Force by retiring two FFG frigates, removing two mine hunters from service and retiring the F-111 fleet past 2010. Then, in the 2005-06 budget, two additional patrol boats added further personnel to Navy.

Three initiatives from last year's budget increased the target strength for the ADF. First, the reactivation of the two Mine Hunters added an extra 30 people to Navy. Second, the HNA initiative will add an extra full time military 1,485 personnel. Third, the restructure of ADF command and control arrangements delivers a saving of 232 personnel. Since then, we've seen 2,600 people added to the long-term target (mainly in Army) to deliver two additional battalions, while another 563 new people have been added to Air Force's long-term strength due to the C-17 (86 personnel) and F/A-18F Super Hornet (477 personnel) acquisitions.

The recorded and estimated figures, as best we can determine, for the 2016-17 target strength of the ADF are set out in Table 2.4.4.

Table 2.4.4: Long-term target for the permanent ADF

	Navy	Army	Air Force	Total
Post DRP Baseline	13,800	23,000	13,000	50,000
East Timor Boost 1999		3,000	555	3,555
White Paper Target	13,800	26,000	13,555	53,355
2002-03 PBS				
Tactical Assault Group		154		154
Incident Response Regiment		117		117
2003-04 PBS				
Special Operations Command	3	321	3	327
Defence Capability Review				
Retire 2 oldest FFG	-416			-416
Retire F-1111 strike fleet			-486	-486
2005-06 PBS				
Crew for additional Armidale class	63			63
2006-07 PBS				
Reactivate Minehunters	30			30
Rationalisation of ADF C2	-71	-96	-65	-232
HNA		1,485		1,485
2006-07 PAES				
Enhanced Land Force – Stage 1	47	1,446	185	1,678
GAP Year initiative	250	500	275	1,025
2007-08 PBS				
C-17			86	86
F/A-18F Super Hornets			477	477
civilianisation and other adjustments	-17	-311	25	-303
Total (funded)	13,689	29,616	14,055	57,360
Enhanced Land Force – Stage 2		922		922
Total (yet-to-be-fully-funded)	13,689	30,538	14,055	58,282

Adding these various pluses and minuses, yields a total planned long-term strength of 57,360 exclusive of Stage 1 of the Enhanced Land Force initiative, and 58,282 inclusive of that initiative.

It is important to remember that these figures may not take proper account of all the additional personnel required to operate the new equipment that will be entering service over the next several years like the three new Air Warfare Destroyers to be delivered from 2013. Defence is undertaking a review to determine its net personnel and operating cost requirements. This will likely form the basis of a bid in the context of the 2007-08 budget for additional personnel.

How much do personnel cost?

Personnel expenses for Defence including DMO in 2007–08 will be around \$7.7 billion rising to \$9.1 billion in 2010–11. (Note: these figures include the cost of military personnel and Defence civilians from PBS Table 4.6 on page 114 and DMO civilians from Table 6.1 on page 315). (The cost of DMO military personnel is recorded on Defence’s accounts and appears as part of DMO supplier expenses, whereas DMO civilian numbers do not appear directly on Defence’s accounts. We explain why in Section 2.7 of this Brief.)

Separate military and civilian personnel expenses have appeared in the last six annual reports and in the 2007-08 PBS. This allows us to calculate the recent and estimated per-capita cost of civilian and military personnel over time. The results of this calculation appear in Table 2.4.5 and 2.4.6. The per-capita expenses include salaries, allowances, superannuation, health, redundancies, housing and fringe benefits tax.

To ensure consistency we have adjusted the historical data for military personnel expenses in Table 2.4.5 to remove military compensation, which has been transferred to the Department of Veteran’s Affairs, and removed one-off expenses incurred in 2004-05. This ensures a like-with-like comparison between the years as far as possible.

The percentage growth rates are nominal (not corrected for inflation) but we have listed the nominal indexation granted to Defence for comparison. These are:

- For civilians; Implicit Non-Farm GDP Deflator +2 per cent
- For military; Implicit Non-Farm GDP Deflator +2½ per cent

It is important to note that indexation of +2 per cent and +2½ per cent did not commence until 2004-05. Prior to that time Defence had to make do with the implicit Non-Farm GDP Deflator (NFGDPD). Nonetheless, the comparison over the entire period is valid for judging the adequacy or otherwise of the present regime.

Table 2.4.5: Per-capita permanent ADF personnel expenses

	Military Numbers	Expense \$ 000's	Per Capita	Nominal Growth	Nominal Indexation
00-01	50,355	4,047,121	\$80,372		
01-02	50,932	4,273,863	\$83,913	4.41%	4.70%
02-03	52,080	4,458,208	\$85,603	2.01%	5.50%
03-04	52,034	4,890,100	\$93,979	9.78%	6.40%
04-05	51,813	4,757,900	\$91,828	-2.29%	6.50%
05-06	51,151	5,093,100	\$99,570	8.43%	7.40%
06-07	51,476	5,549,500	\$107,808	8.27%	7.25%
07-08	52,505	6,021,300	\$114,681	6.38%	5.00%
08-09	54,173	6,325,400	\$116,763	1.82%	4.00%
09-10	55,221	6,674,700	\$120,872	3.52%	3.80%
10-11	55,700	7,121,100	\$127,847	5.77%	4.80%
			average	4.81%	5.54%

Source: Defence Annual Reports and 2007-08 PBS, expenses adjusted pre-2003-04 to take account of Reserve component.

The key result from the time series of military per capita costs in Table 2.4.5 is that actual growth has been around 0.7 per cent below indexation. This amounts to additional unnecessary funding of around \$39 million per year compounding.

Table 2.4.6: Per-capita Defence civilian personnel expenses

	Civilian Numbers	Expense \$ 000's	Per Capita	Nominal Growth	Nominal Indexation
00-01	16292	956,661	\$58,720		
01-02	16819	1,086,116	\$64,577	9.97%	4.2%
02-03	18385	1,235,752	\$67,215	4.09%	5.0%
03-04	18303	1,363,205	\$74,480	¹ 10.81%	5.9%
04-05	17753	1,293,100	\$72,838	-2.20%	6.0%
05-06	13577	1,066,700	\$78,567	7.86%	6.9%
06-07	14500	1,190,900	\$82,131	4.54%	6.8%
07-08	14658	1,283,300	\$87,549	6.60%	4.5%
08-09	14641	1,329,800	\$90,827	3.74%	3.5%
09-10	14630	1,436,000	\$98,154	8.07%	3.3%
10-11	14650	1,544,900	\$105,454	7.44%	4.3%
			average	5.8~6.1%	5.0%

Source: Defence Annual Reports and 2007-08 PBS.

Note: excludes DMO past 2005-06

In contrast, civilian costs have been increasing by at least 0.8 per cent faster than indexation. This corresponds to \$9.5 million per year compounding. The explanation for this rapid rise is likely the ongoing ‘level enrichment’ that sees the number of senior personnel grow disproportionately. In part, this can be explained by the need to compete in a tight labour market for skilled personnel. We explore another factor influencing civilian per capita expenses later in this section, level enrichment.

Comparison of the Defence civilian per capita rates with those available for DMO appears in Table 2.4.7. It is unclear why Defence per capita civilian expenses are rising more than twice as quickly as those in DMO, and it is equally unclear why DMO per capita costs are set to fall by 2% this year.

Table 2.4.7: Per-capita DMO civilian personnel expenses

	DMO Civilians	DMO Expenses	DMO per capita	Defence per capita
2005-06	4,502	353,900	\$78,610	\$78,567
2006-07	4,961	418,857	\$84,430	\$82,131
2007-08	5,277	436,124	\$82,646	\$87,549
2 year %	-	-	5.1%	11.4%

Source: 2007-08 PBS and 2005-06 DAR

Finally, a caution is in order when looking at the data in the last three tables because the ongoing impact of accrual (non-cash) shifts can make very significant differences.

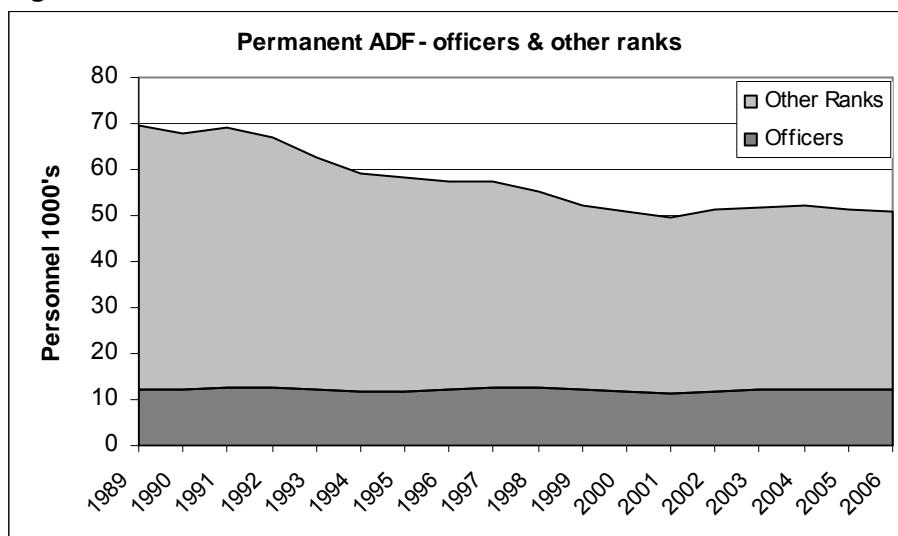
¹ This includes some one-off transition costs associated with business improvement and a shift due to the introduction of civilians to provide health services. In 2005-06 Defence advised that this and other extraordinary factors accounted for the difference between the then estimated figure of 10.17% and an underlying per-capita growth of 5.8%. Making this adjustment yields average growth of 5.6%, without it the result is 6.1%.

For example, last May the civilian leave liability for 2004-05 was assessed as \$35.2 million whereas the projected result has grown three-fold to \$109 million. This sort of thing has probably contributed to some of the big year-on-year variations in growth in both civilian and military per-capita expenses. Accordingly, the trends are at best indicative and should be treated with care – but they are the best that we can extract from the budget papers.

Personnel Structures

The breakdown of ADF personnel by rank, and civilians by level, appears in Table 4.5 on page 113 of the PBS and in Table 5.3 on page 31 for DMO. As the ADF has contracted over the last decade the number of officers has remained more or less constant so that the percentage of officers in the permanent ADF has grown from 17% to 24.3% Figure 4.4.5. The result is that there are now around 3.2 enlisted men for every officer. In 2007-08 the percentage will fall to 22.7% as total numbers increase. In comparison, recent figures for the UK and US are around 19% and 16% respectively although it should be noted that they both have very much larger economies of scale.

Figure 2.4.5: Permanent ADF Numbers as at 30 June 1989 – 2006



Source: Defence Annual Reports 1989-90 to 2005-06.

Generals and Mandarins

The trends in star rank, senior executive, and senior officer numbers are shown in Table 2.4.8, the most recent data is taken from the 2007-08 PBS. Changes in reporting account for the gaps and lack of earlier data.

As shown, in the last decade, the number of civilian senior executives has increased by 40% and military star-rank officers by 37%. At the same time, the civilian workforce grew by only 20% and the military workforce actually declined by 1%.

Over a similar time frame, the number of civilian and military senior officers has grown by 52% and 26% respectively. However, the fastest rate of increase has occurred at the level of Deputy Secretary and 3-star military officer (Table 2.4.9) where much of the growth has occurred in recent years including as a result of the 2007 Defence Management Review (see Section 7 of the Brief).

Table 2.4.8 Numbers of Senior Ranks and Executive Levels; average funded strength

	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	%
Civilian											
Executives (Defence)	100	106	103	117	130	123	96	102	107	108	
Executives (DMO)							30	29	28	32	
Total	100	106	103	117	130	123	126	131	135	140	40%
Senior Officers (Defence) ¹	0	0	3317	3844	3824	3889	3081	3385	3612	3710	20%
Senior Executives (DMO) ¹	0	0	0	0	0	0	995	1064	1232	1339	35%
Total	0	0	3317	3844	3824	3889	4076	4449	4844	5049	52%
Military											
Star Officers	110	0	120	119	120	119	125	135	151	151	37%
Senior Officers ²	1360	0	1415	1467	1507	1528	1551	1594	1693	1707	26%

Source: Defence Annual Reports and 2007-08 PBS. ¹EL 1 and 2 Levels. ²Colonel and Lt Colonel Ranks.**Table 2.4.9 Numbers of Senior Ranks and Executive Levels; average funded strength**

	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	%
Deputy Sec. (Defence)	3	4	5	5	5	5	5	5	5	8	167%
Deputy Sec. (DMO)	1	1	1	1	1	1	1	1	1	3	200%
subtotal	4	5	6	11	175%						
3-Star Officers	4	4	4	4	4	5	5	5	5	5	25%
Total	8	9	10	10	10	11	11	11	11	16	100%

Source: Defence Annual Reports and 2007-08 PBS.

Professional Service Providers

A significant part of the Defence workforce is made up of specialist Professional Service Providers (PSP) who occupy line positions within the organisation. There is a program underway to replace them, where cost effective, with permanent APS personnel. Recently planned and achieved figures appear in Table 2.4.10. It appears that progress is being made in reducing the number of PSP. The savings achieved by doing so contribute to Defence's program of administrative savings.

Table 2.4.10: Professional Service Providers

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Numbers (planned)		2,111	1,771	1,679	1,536	1,472
Numbers (actual)	2,311	1,878	1,906	1,712	1,475	
Difference		-233	+135	+33	-61	

Source: Defence Annual Reports and 2007-08 PBS.

Defence Remuneration

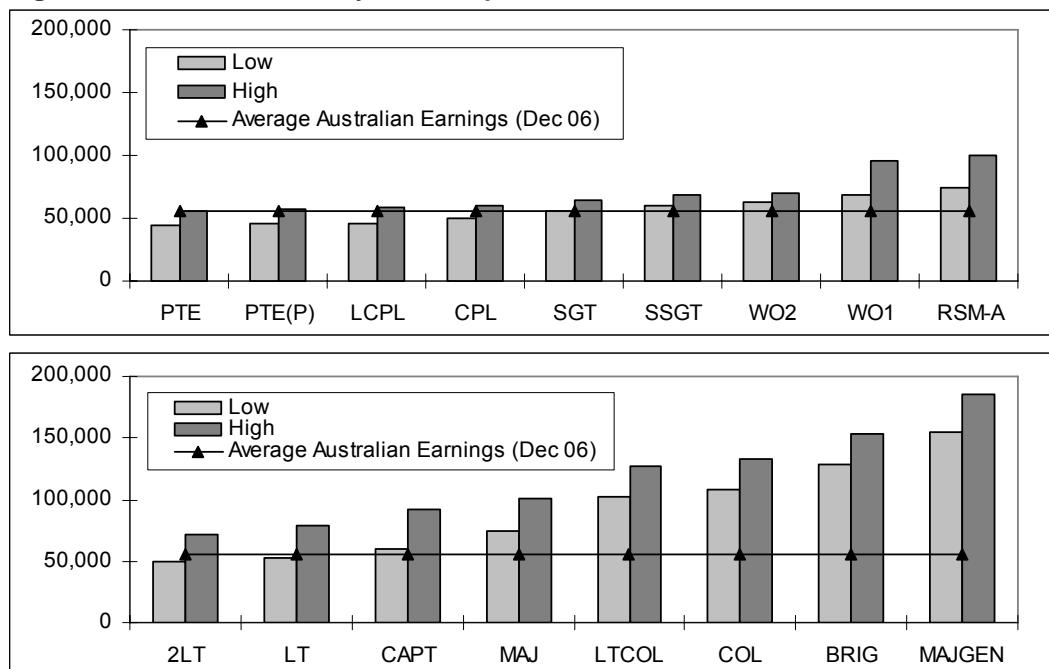
The PBS does not deal with Defence remuneration. But because the largest single slice of the Defence budget goes towards civilian and military salaries we have included a short summary of the key data. Further detail can be found on the Defence Personnel Executive web-site: <http://www.defence.gov.au/dpe/>

Defence Salaries

Figure 2.4.6 and 2.4.7 show Defence military and civilian salaries circa late-2006/mid-2007 benchmarked against the latest available Average Weekly Ordinary-Time Earnings for Full-Time Earning Adults (AWOFTEA) from December 2006. The military figures include both salary and the service allowance of \$10,098 per annum received by all service personnel below the rank of Colonel. No account has been taken of the ancillary benefits received by military personnel like housing, medical,

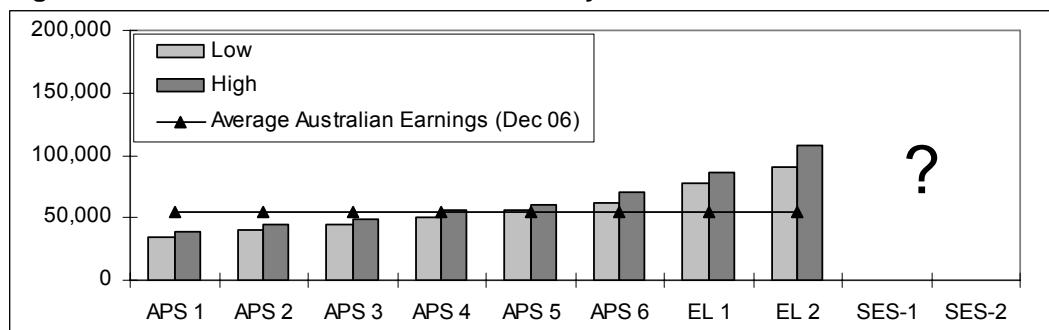
rations and specific allowances for skill, hardships and deployments. Unfortunately, the current salaries of Defence civilian executives within the SES are unavailable.

Figure 2.4.6 Defence military salaries plus service allowance as at November 2006



Source: ABS weekly earnings data and Defence pay rates available on <http://www.defence.gov.au/dpe>

Figure 2.4.7 Defence civilian salaries as at May 2007



Source: ABS weekly earnings data and Defence pay rates available on <http://www.defence.gov.au/dpe>

To facilitate understanding of the salaries listed in the three tables above, a comparison of relative ranks/levels has been provided in Table 2.4.11 below.

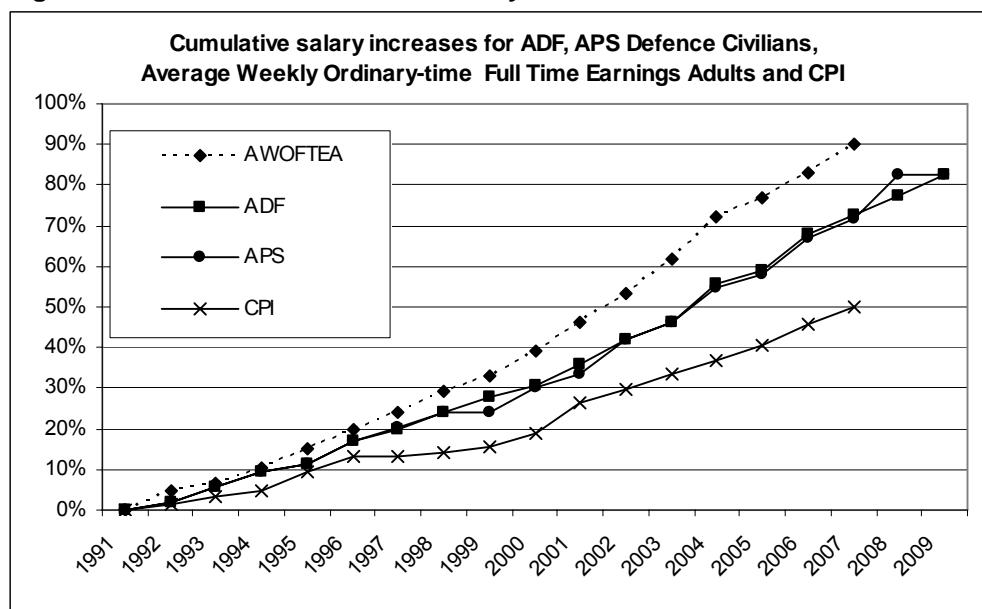
Table 2.4.11: Rank/level comparison:

Civilian	Navy	Army	Air Force
APS-4	Sub-Lieutenant	Lieutenant	Flying Officer
APS-5	Lieutenant	Captain	Flight Lieutenant
APS-6	Lt-Commander	Major	Squadron Leader
EL-1	Commander	Lt-Colonel	Wing Commander
EL-2	Captain	Colonel	Group Captain
SES-1	Commodore	Brigade	Air Commodore
SES-2	Rear Admiral	Major General	Air Vice Marshall

The comparison of defence salaries with AWFOTC in Figure 2.4.6 and 2.4.7 represents only a snapshot in time. The relative dynamics of average earnings, defence salaries and the cost of living, is quite another issue. Indeed, as Figure 2.4.8

shows, over the past decade and a half, defence salaries have consistently grown more slowly than average earnings but more quickly than the Consumer Price Index (CPI).

Figure 2.4.8 Defence civilian and military salaries – rate of increase



Source: ABS weekly earnings data and Defence pay rates available on <http://www.defence.gov.au/dpe>

Three observations can be made about the relative growth in average earnings, defence salaries and consumer prices:

- Because the salary increases for the (largely distinct) ADF and APS workforces are now explicitly linked, any suggestion that they are driven by productivity is tenuous to say the least.
- The fact that average earnings have outpaced defence salaries does not *necessarily* mean that defence remuneration has failed to keep pace with community standards. It may be that the growth in average earnings reflects structural changes in the Australian workforce. More analysis is needed prior to a firm conclusion.
- The actual remuneration of civilian personnel has increased much more quickly than for the military workforce, in part, through the ‘level enrichment’ shown in Table 2.4.8. (Note that civilian senior officers make up 25% of the civilian workforce while military senior officers only account for 3%, so that the former is much more sensitive to growth than the latter.)

2.5 Planned Outcome Performance [PBS Chapter 5]

Under the outputs and outcomes framework explained in Section 1.2 of this Brief, the government ‘buys’ Outputs from Defence to achieve designated Outcomes. Chapter 5 of the PBS describes these transactions between the government as customer for Defence’s Outputs, and Defence as supplier of those outputs.

The Cost of Outcomes and Outputs

The core of the Defence Budget is the statement of the costs of Outputs on p.119 of the PBS. It used to be that the concept of ‘price’ was used within the Outcomes and Outputs framework to capture an element of businesslike competitiveness in the relationship between government and agency. In the 2004-05 budget the notion of *price* was abandoned in favour of simply assigning a *net cost* to each Outcome and Output. Where no confusion arises we will henceforth refer to previous year’s *prices* as *net costs*, or simply as *costs*. In practice, the net cost is built up from past forward estimates corrected for budget measures and other funding adjustment. In 2007–08 net cost is built upon the forward estimates given in the 2006–07 PAES.

Because Defence’s organisational structure is not aligned with the Outcome/Output framework, the net costs are ultimately attributed quantities derived from the budgets that correspond with the organisational structure. The Outcome/Output net costs therefore depend on both the actual expenses incurred within Defence Groups and on the costing methodology used to apportion this money to the Outcomes/Outputs.

Defence has put a lot of effort into improving the Output costing methodology that underpins the classified Defence Management and Finance Plan, and that is reflected in the PBS. Development is ongoing and has resulted in very substantial shifts in the costs attributed several years ago.

There is a subtle accrual aspect to the Outcome/Output net costs. The various expenses that go into making up the costs include items that translate directly into cash expenditure, like employee salaries and allowances, and other items like depreciation that do not. Nevertheless, the full net cost is paid in cash through the Output appropriation. As a consequence, those expenses that do not translate directly into cash expenditure generate residual cash that is available for other purposes such as investment in new capital equipment or facilities. This is why the total of the capital budget and the prices of outputs together exceed total Defence funding. A fuller discussion of the Defence funding framework appears in Section 9.

For the purpose of comparison, we have collected the Output/Outcome costs from the past eight years in Table 2.5.1 along with the newer costs from the 2007-08 PBS (see also PBS Tables 5a, 5b, 5c and 5d). In effect, what were previously considered Outputs prior to 2003-04 were redefined as Outcomes in that year’s budget, and what were previously sub-Outputs became Outputs at the same time. Some care must be taken in making comparisons between years. Variations in net cost are obscured by changes in definition between 2000–01 and 2001–02, as well as the ongoing refinement of the attribution rules used to construct the net costs. In addition, the net costs post 2001-02 are exclusive of the capital use charge of around \$4 to \$5 billion that was previously levied on Defence. This explains the drop in net cost after that date.

The costs for the years 2002-03 through 2010-11 are directly comparable up to the uncertainty introduced by the ongoing refinement of the Outcome/Output costing methodology. The overall variations between 2006-07 and 2007-08 are detailed in the PBS [p.195 to 198]. The 2007-08 PBS also lists the Group fiscal contributions to the Outcomes in Table 5e on page 130. (We reproduce this table in Section 1.2 of this Brief where we explain the relationship between the Groups and Outcomes/Outputs.)

Table 2.5.1: Defence Outcome Net Costs 1999–00 to 2010–11, million \$

#	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
1	1,102	1,353	807	869	740	1,052	976
2	4,421	5,216	5,796	3,568	4,177	4,634	4,711
3	4,576	4,758	5,392	4,981	5,086	5,416	5,177
4	4,551	5,676	5,526	4,158	4,501	4,813	4,600
5	193	719	209	179	206	246	236
6	371		339	317	457	459	508
Total	15,214	17,722	18,069	14,073	15,168	16,620	16,209
7				2,229	1,457	2,408	2,024

#	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
1	1,052	976	1,134	1,577	983	782	652
2	4,634	4,711	4,686	5,013	5,140	5,285	5,594
3	5,416	5,177	6,034	6,393	6,442	6,543	6,596
4	4,813	4,600	4,553	5,325	5,601	5,659	5,742
5	246	236	233	303	318	358	369
6	459	508	516	559	582	660	751
Total	16,620	16,209	17,157	19,170	19,066	19,287	19,707
7	2,408	2,024	1,981	2,004	2,111	2,180	2,289

Source: 1999-00 to 2005-06 from Defence Annual Report, all other figures from 2007-08 PBS

Outcome Statements

The PBS has a separate section beginning on page 131 devoted to each of the Outcomes. This generally includes, for each:

- A list of the Outputs within that Outcome followed by a couple of introductory paragraphs describing in broad terms what the Outcome includes and does.
- A ‘Planned Performance’ statement that explains some of the more significant activities or developments in the Outcome over the coming year including key milestones in the development of new capabilities.
- A section outlining the ‘Key Risks and Limitations’ to the delivery of the outputs in the coming year.
- A section describing the ‘Risk Mitigation’ to address these risks and limitations.
- A cost summary for the various Outputs within that Outcome covering the budget year and forward estimates (that is; the next four years).
- A table listing the expenses which go into making up the Outcome net cost for the next four years.

Output Statements

Within each Outcome statement are a series of Output statements, which generally include:

- A brief description of the capability delivered by that Output including (sometimes) an outline of the force elements included therein which can be considered as a quantity target.
- A statement of performance targets which varies from Outcome to Outcome but tends to include includes things like overall preparedness goals, flying hours and sometimes major capital equipment goals.

What do the Net Costs tell us?

In principle, the output costs could allow an analysis of trends in the efficiency of output delivery and provide warning signs of emerging cost pressures. However, the ongoing refinement of the Output costing methodology and large accrual adjustments have introduced so much volatility into the accumulated data that little meaningful time-series information exists at present.

To start with, substantial revisions to the Output costing methodology reflected in the 2003-04 and 2004-05 PAES destroyed any hope that the earlier data was meaningful. Then, in the 2004-05 DAR, the Output costs increased from an estimated \$15.8 billion to \$16.6 billion mainly due to ‘significant accrual adjustments, in particular write down of assets through inventory stocktaking, stratification of inventory and revaluation of the estate.’ If this were not enough, unexplained large shifts in Output costs in the 2005-06 DAR and 2006-07 PAES strip away any remaining confidence that the costs might somehow be useful.

Table 2.5.2 summarise the Output costs from PBS Table 5b (which includes figures across the forward estimates) along with those from recent years. Note that in 2003-04 the old Air Force Outputs of Maritime Patrol and Strategic Surveillance were amalgamated to form Strategic Surveillance & Response Operations. This further obscured what’s going on in Air Force beyond that which occurred when Strike Reconnaissance and Tactical Fighter were bundled together into the new Air Combat Output several years ago.

Since the Defence’s Output costing methodology has never properly stabilised to allow a baseline time series to emerge, the Output costs have never been anything more than a highly artificial by-product of the Commonwealth’s budgeting framework. So it’s not surprising that, in reality, both Defence and the Department of Finance remain as focused as ever on the cost of inputs like personnel, facilities and logistics, with only scant regard to the notion of the overall cost of outputs.

A new Output framework [PBS p. 14–15] more closely aligned with the organisational structure of defence will be introduced in 2007-08. This should greatly improve visibility of how money is spent within Defence. Not only will it give visibility of how much money and personnel are directed to non-combat activities like administration, training and education, but it will allow realistic ‘product-level’ costing of specific fleets. If desired, the old ‘pure’ outputs will still be amenable to re-calculation by arithmetic attribution.

Unfortunately, the new Outputs will remain clouded in a veil of accrual budgeting and reporting. Much would be gained by directly reporting cash budgets and capital investment by Output – both in terms of stability and meaningfulness.

Table 2.5.2: Net cost of Defence Outcomes and Outputs (\$ million)

Outcome	Output	Net cost					
		03-04	04-05	05-06	06-07	07-08	%
1. Command of Ops	1.1 Command of Ops	479	668	465	403	427	2.2
	1.2 Military Ops and Exercises	240	361	493	707	1,130	5.9
	1.3 National Support Tasks	21	23	18	24	20	0.1
	Total Defence Ops	810	1,052	976	1,134	1,577	8.2
2. Navy Capability	Capability for:						
	2.1 Major Surface Combatant Ops	1,682	1,677	1,680	1,831	1,902	9.9
	2.2 Naval Aviation Ops	520	567	649	612	641	3.3
	2.3 Patrol Boat Ops	265	281	282	248	277	1.4
	2.4 Submarine Ops	845	795	824	790	816	4.3
	2.5 Afloat Support	197	215	252	235	264	1.4
	2.6 Mine Warfare	386	439	354	357	388	2.0
	2.7 Amphibious Lift	372	406	438	394	425	2.2
	2.8 Hydro and Oceanographic Ops	225	255	230	219	300	1.6
3. Army Capability	Total Navy Capabilities	4,177	4,634	4,711	4,686	5,013	26.2
	Capability for:						
	3.1 Special Ops	423	454	490	562	581	3.0
	3.2 Medium Combined Arms Ops	847	835	816	955	1,157	6.0
	3.3 Light Combined Arms Ops	900	1,009	964	1,007	1,049	5.5
	3.4 Army Aviation Ops	593	564	528	569	587	3.1
	3.5 Ground-based Air Defence	123	121	108	116	126	0.7
	3.6 Combat Support Ops	411	504	378	436	457	2.4
	3.7 Regional Surveillance	128	132	127	153	164	0.9
	3.8 Op Logistic Spt to Land Forces	534	542	557	580	604	3.2
4. Air Force Capability	3.9 Motorised Combined Arms Ops	497	518	536	596	620	3.2
	3.10 Protective Ops	632	737	673	1,062	1,089	5.7
	Total Army Capabilities	5,580	5,416	5,177	6,035	6,393	33.3
	Capability for:						
	4.1 Air Combat	1,804	2,091	1,790	1,588	1,843	9.6
5. Strategic Policy	4.2 Combat Support of Air Ops	632	678	742	934	1,023	5.3
	4.3 Strat Surveil & Response Ops	1233	1,098	1,081	145	1,295	6.8
	4.4 Air Lift	831	947	986	886	1,165	6.1
	Total Air Force Capabilities	4,501	4,813	4,600	4,553	5,325	27.8
6. Intel	5.1 International Pol & Engage	176	210	190	175	223	1.2
	5.2 Strategic Pol & Military Strategy	30	36	46	59	80	0.4
	Total Strategic Policy	206	246	236	233	303	1.6
7. Superannuation and Housing Support Services for Current and Retired Defence Personnel	6.1 Intelligence	413	459	508	516	559	2.9
	Total Capability Outcomes	14,073	15,168	16,209	17,158	19,170	100

Source: 2003-04 to 2005-06 DAR, all other figures from 2007-08 PBS.

Planned Performance

There are three broad performance measures that have been employed at the Output level in the last two Defence Annual Reports; preparedness, core skills and quantity. These same performance measures are employed in the 2007-08 PBS. We explore these three measures below. It's important to note that some sub-outputs, especially those in Outcome 1, have additional specific performance targets beyond these generic ones, and we make no attempt to describe the administered Outcome 7.

Preparedness

Preparedness refers to the readiness and sustainability of the ADF to undertake operations, be it national support tasks, peacekeeping or war. The process by which preparedness targets are set bears recounting.

To begin with, the government's White Paper and Strategic Updates set out the broad strategic tasks that the ADF needs to be prepared to undertake – for example ‘contributing to the security of our immediate neighbourhood’. Using this as a basis, Defence develops what is called *Australia's Military Strategy* which includes for each strategic task a series of *Military Response Options* which define the broad operational objectives without specifying how they are to be accomplished – for example ‘maintain sea lines of communication to the north of Australia’. These Military Response Options then form the basis of the annual *Chief of the Defence Force's Preparedness Directive*.

The *Chief of the Defence Force's Preparedness Directive* in turn forms the basis of *Operational Preparedness Objectives* down to the force element group (sub-output) level. But this is not the end of the process. Resource considerations are then taken into account with the setting of a *Directed Level of Capability* and for each Output along with a cost agreed between the Secretary, Chief of the Defence Force and the responsible output executive (e.g. Chief of Army).

The final result is a series of targets for each sub-output. They are classified. But, for example, the light infantry Output might be required to ‘be prepared to deploy a battalion at 90 days notice to assist in a regional peacekeeping operation and to maintain the deployment for 12 months’ (this example is purely illustrative).

Core Skills

Preparedness targets set for Outputs are driven by Military Response Options with an anticipated warning time of less than 12 months. To take account of possible longer-term tasks and the requirement to retain broad expertise in the three Services, an enduring performance target for nearly all the Outputs is to ‘achieve a level of training that maintains core skills and professional standards across all warfare areas’.

The assessment of what is to be achieved, and whether it has been achieved, is ultimately based on the professional military judgement of the Service Chiefs. A key consideration is whether planned training has been completed or not.

Quantity

Most of the Outputs include one or more ‘quantity’ measures that try to capture some aspect of *how much* capability will be delivered. Each of the three Services uses a different type of measure.

Navy: The basic measure of quantity used by Navy relates in some sense to the availability of ships and their crew to undertake a mission. From 1990-91 to 1998-99 the measure used was the average number of vessels available over the year, from 1999-00 to 2000-01 it was the number of vessel days at Minimum Level of Capability (MLOC) and in 2001-02 it was the numbers of vessel days Fully Mission Capable (FMC). In 2005-06 yet another measure was introduced, the planned number of Unit Ready Days (URD), defined as follows: Unit Ready Days are the number of days that a force element is available for tasking, by the Maritime Commander, within planned readiness requirements. While this looks similar to the previous definition of Fully Mission Capable we're told that it is a new measure, and we therefore caution against comparison between the two quantities.

As of the 2003-04 DAR a new measure was introduced by Navy: 'Achieved Mission Capability' (AMC) which is the fraction of the URD for which a vessel meets the required level of readiness for the actual tasking for which the force element has been scheduled at any time through its operational cycle. Until a baseline for AMC accumulates we will continue to focus on URD as the measure of quantity.

Army: With the exception of Army Aviation, the quantity measure used by Army is the presence of adequate quantities of trained personnel and equipment within an Output. No quantified targets are released publicly. In practice we get a qualitative assessment in the Annual Report.

Air Force: The quantity measure used by Air Force and Army Aviation is the number of flying hours undertaken by the Output. These measures have been applied consistently for over a decade and constitute a useful diagnostic tool given the established baseline.

Recent Performance

The last five Defence Annual Reports have maintained a largely consistent format of reporting against performance targets at the sub-Output level which equates to the current Outputs. This makes year by year comparisons possible. Table 2.5.3 summarises the results from the 2005-06 Annual Report and tracks the changes from the year before. Defence uses a four-point performance scale for preparedness and core skills: Achieved, Substantially Achieved, Partially Achieved and Not Achieved. To facilitate presentation we have mapped the numerical 'quantity' results according to the key at the bottom of the table.

Table 2.5.3: Output Performance from the 2005-06 Defence Annual Report

Output	Preparedness	Core Skills	Quantity
1. DEFENCE OPERATIONS			
1.1 Command of Operations		Achieved ↔	
1.2 Military Operations		Achieved ↔	
1.3 National Support Tasks		Achieved ↔	
2. NAVY			
2.1 Major Surface Combatants	Achieved ↔	Substantially ↔	Achieved ↔
2.2 Naval Aviation	Partially ↔	Substantially ↔	Partially ↓
2.3 Patrol Boats	Substantially ↓	Achieved ↔	Achieved ↔
2.4 Submarines	Substantially ↔	Achieved ↔	Substantially ↔
2.5 Afloat Support	Achieved ↔	Achieved ↔	Achieved ↔
2.6 Mine Warfare	Achieved ↑	Achieved ↔	Achieved ↔
2.7 Amphibious Lift	Achieved ↔	Achieved ↑	Substantially ↓
2.8 Hydrographic	Achieved ↑	Achieved ↔	Achieved ↔
3. ARMY			
3.1 Special Ops	Achieved ↔	Achieved ↔	Achieved ↔
3.2 Medium Combined Arms	Partially ↔	Partially ↔	Substantially ↔
3.3 Light Combined Arms Ops	Achieved ↔	Substantially ↔	Achieved ↔
3.4 Army Aviation Ops	Achieved ↔	Achieved ↑	Substantially ↔
3.5 Ground-Based Air Defence	Partially ↔	Substantially ↔	Partially ↔
3.6 Combat Support Ops	Partially ↓	Substantially ↔	Substantially ↔
3.7 Regional Surveillance	Achieved ↔	Achieved ↔	Achieved ↔
3.8 Operational Logistics Spt	Partially ↔	Partially ↔	Partially ↔
3.9 Motorised Ops	Partially ↔	Partially ↔	Substantially ↔
3.10 Protective Ops	Achieved ↑	Partially ↔	Partially ↔
4. AIR FORCE			
4.1 Air Combat Ops	Achieved ↔	Achieved ↔	Substantially ↓
4.2 Combat Spt of Air Ops	Achieved ↔	Partial ↔	Substantially ↓
4.3 Strategic Surveillance & Res	Achieved ↔	Achieved ↔	Substantially ↔
4.4 Air Lift	Achieved ↑	Achieved ↑	Substantially ↓
5. STRATEGIC POLICY			
5.1 Strategic Engagement		Achieved ↔	
5.2 Military Strategy & Cmd		Achieved ↔	
6. INTELLIGENCE		Achieved ↑	
Improved since 2004-05: ↑	Static since 2004-05: ↔	Declined since 2004-05: ↓	
Quantity: Above 95% = Achieved, 95% to 75% = Substantially, Below 75% = Partially			

Source: 2004-05 and 2005-06 DAR

Figures 2.5.1 to 2.5.3 plot the delivery of Defence outputs as reported in the Defence annual reports between 2000-01 and 2005-06. There was a steady improvement over the first four years and a somewhat of a levelling off of performance in the last two although the trend remains positive overall.

Figure 2.5.1: Output performance – preparedness

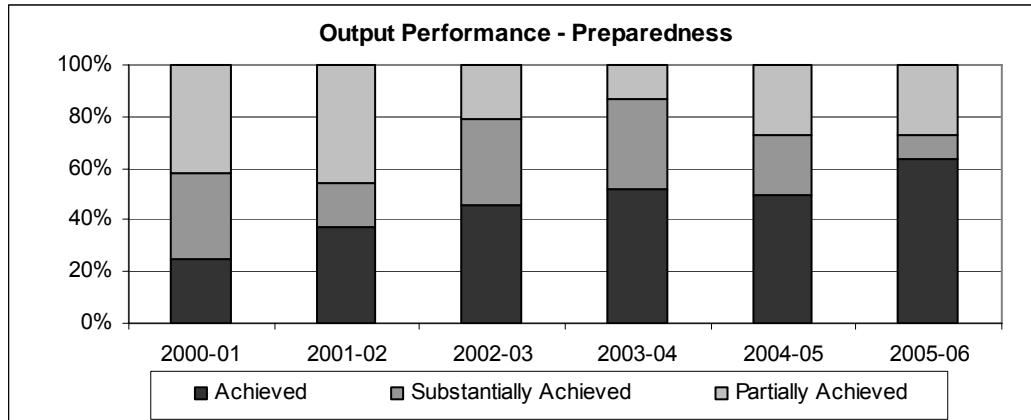


Figure 2.5.2: Output performance – core skills

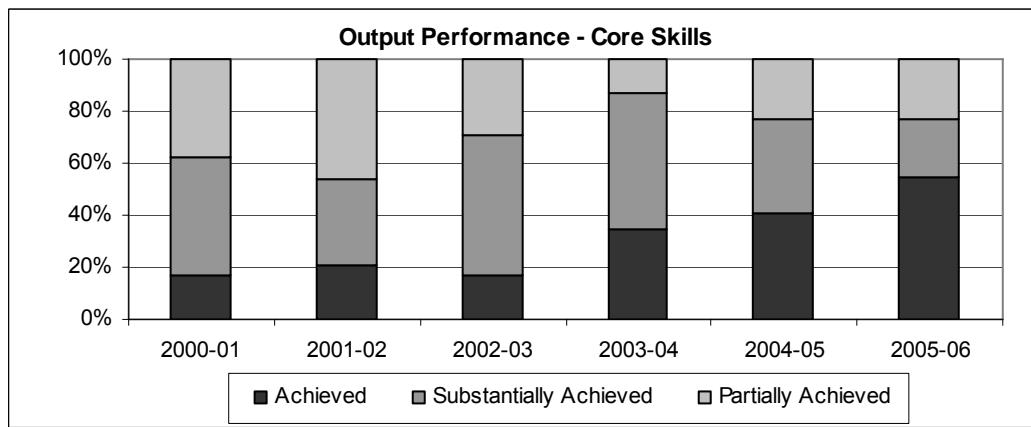
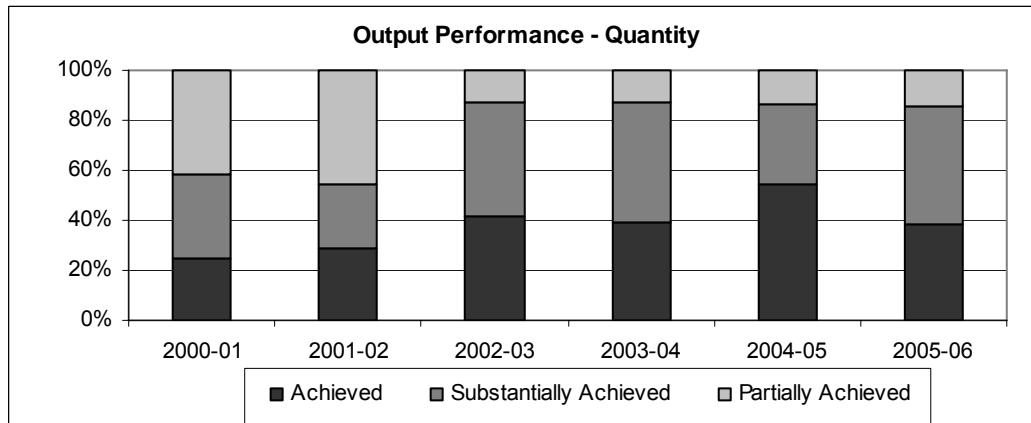


Figure 2.5.3: Output performance – quantity



Risks and Limitations

The risks and limitations identified in the 2007-08 PBS cover a wide range of issues, some general and some specific to individual Outcomes/Outputs.

The **high tempo of concurrent operations remains** a concern but does not appear to be as pressing an issue as in previous years. Nevertheless, for some outputs the operational tempo has disrupted training and exercises.

All three services express concern about **personnel**, especially in specific skill areas. But the problem is not spread evenly. Navy seems worst off and they are finding both recruitment and retention difficult. Air Force appears to be in the best situation but still has problems in some specific areas.

It looks like the injection of extra funds into **logistics** over the last couple of years has come close to fixing the long-standing problem of systemic logistics shortfalls. Where there are problems, they seem to have more to do with the availability, rather than the affordability, of logistics supplies. Overall then, there is a consistent picture developing. Over the last five years the logistics problems identified in the PBS have been getting less severe, and the last four Annual Reports have reflected improved performance, as logistics funding has increased. All of the Outcomes have specific and unique problems that are raised in the PBS as briefly set out in Table 2.5.4 below.

Table 2.5.4: Outcome risks and limitations from the 2007-08 PBS

Outcome 1 Operations	Outcome 2 Navy	Outcome 3 Army	Outcome 4 Air Force	Outcome 5 Intelligence
<ul style="list-style-type: none">▪ Concurrent operations▪ Balancing operational preparedness and exercise Participation▪ Maintaining logistics support to operations	<ul style="list-style-type: none">▪ Personnel shortages▪ Concurrent operations▪ Inadequate air warfare capability▪ Remediation of the submarine, aviation and undersea warfare capabilities▪ Force protection	<ul style="list-style-type: none">▪ Personnel shortages▪ Remediation of logistics support▪ Costly infrastructure▪ Introduction of new capability	<ul style="list-style-type: none">▪ Personnel shortages▪ Transition to new capabilities	<ul style="list-style-type: none">▪ Personnel shortages▪ Changing demands

Output Summaries

To augment the information provided in the PBS at the Output level, we have prepared one page Output summaries that seek to draw together relevant background information including on recent performance. In doing so, we have not sought to reproduce the material in the PBS but to compliment it.

An important part of the summaries is a graphical comparison of current targets with past performance. Unfortunately, it has not always been possible to include all the available data on flying hours and sea days within the summaries, so the data has been restricted to key platforms where necessary.

Output 1.1 Command of Operations (Command of Operations)

Force Structure & Role

The Chief of the Defence Force (CDF) has delegated responsibility to the Vice Chief of the Defence Force (VCDF) for the delivery of Outcome One—Command of Operations in Defence of Australia and its Interests. VCDF in the role of Commander Joint Operations, commands Joint Operations Command (JOC), which comprises a headquarters and joint task forces and assigned force elements. VCDF is responsible for planning and conducting ADF campaigns, operations, joint exercises and other activities as directed by CDF.

The ADF is currently undergoing a phased transition to an integrated model of command and control. This new structure separates the command of operations from the Raise Train Sustain of force elements by the single Services. From January 2007, ADF operations have been controlled by VCDF through a single joint headquarters designated Headquarters Joint Operations Command (HQJOC) at Potts Point, NSW.

A co-located HQJOC facility is being constructed near Bungendore, NSW. It is to be staffed by up to 750 personnel and will be operational by the end of 2008. Until that time, control of operations, specified exercises and other activity will occur from existing headquarters facilities in Canberra and Sydney, with support from Joint Logistics Command in Melbourne.

Within Australian Defence Headquarters (ADHQ), CDF and VCDF are supported by a strategic military staff – Military Strategic Commitments (MSC) branch – that works closely with other ADHQ areas and HQJOC. CDF's strategic intent for operational commitments is translated into direction by MSC staff. MSC also provides the military expertise for strategic engagement with government and representation and coordination at both the inter-departmental and coalition level.

Issue

- Issues in 2007-08 include managing concurrent operations and exercise participation, and maintaining logistics support to operations in the face of high operational tempo.

Performance Targets

- Australian operational concepts are developed to support ADF planning against credible contingencies.
- The Joint Operations Command provides guidance for joint force preparedness in accordance with the Chief of the Defence Force's direction.
- Command of ADF forces is effective and the government's strategic objectives for operations are achieved.
- The JOC transitional structure implemented in early 2007 will be evaluated and refined.

Past Performance (Annual Report):

*estimate	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Achieved	Not Reported	Achieved
2001-02	-	Achieved	Not Reported	Substantially Achieved
2002-03	\$527 million*		Achieved	
2003-04	\$479 million		Achieved	
2004-05	\$356 million		Achieved	
2005-06	\$465 million		Achieved	
2006-07	\$403 million		Achieved	
2007-08	\$427 million			

Output 1.2 ADF Military Operations and Exercises

Force Structure & Role

As for Command of Operations (Output 1.1) plus forces specifically assigned for the purpose of the operation or exercise. As the title suggests, this is the actual conduct of operations and joint ADF combined (international) exercises.

Issues

- As per Output 1.1.

Performance Targets include:

- ADF operations meet government direction.
- Forces identified in the Australian Theatre Operational Preparedness Requirement for operational tasks maintain required preparedness levels.
- ADF forces are effectively deployed and sustained.
- The Program of Major Service Activities is reviewed regularly and modified where required.
- The major ADF exercises commitments for 2007-08 include:
 - ~ Exercise Suman Protector and Exercise Bersama Shield 08, exercises in conjunction with the Five Power Defence Arrangements
 - ~ Exercise Pitch Black 08, to test the ADF in planning, tasking and execution of offensive air operations within a coalition environment
 - ~ Exercise Talisman Sabre 07, to exercise joint and combined forces in a short warning power projection scenario.
- In 2007-08 there are planned to be five operations contributing to the immediate neighbourhood and six supporting wider interests.
- In 2007-08 there are planned to be three ADF Joint exercises, six combined ADF/United States exercises, five Five Power Defence Defence Arrangement exercises, three ADF/New Zealand exercises and eighteen other combined exercises.

Past Performance (Annual Report):

* estimate	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Achieved	Not Reported	Substantially Achieved
2001-02	-	Achieved	Not Reported	Achieved
2002-03	\$326 million*		Achieved	
2003-04	\$240 million		Achieved	
2004-05	\$401 million		Achieved	
2005-06	\$493 million		Achieved	
2006-07	\$707 million			
2007-08	\$1,130 million			

Output 1.3 Contribution to National Support Tasks (Command of Ops)

Force Structure & Role

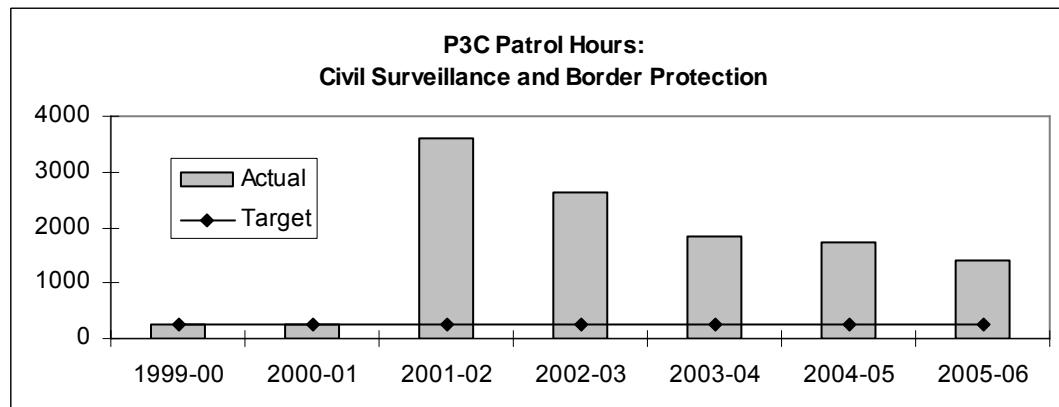
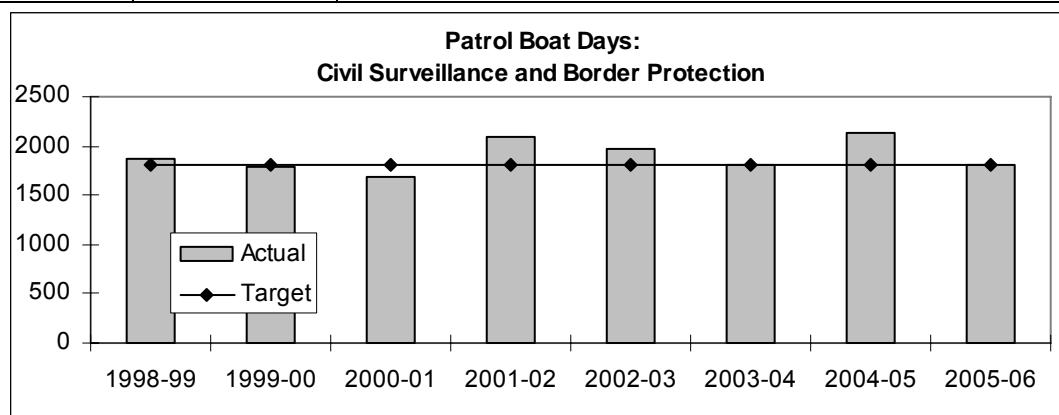
As for Command of Operations (Output 1.1) plus forces specifically assigned for the purpose of national support in non-combat roles. This ranges from the ongoing routine allocation of Patrol Boat and AP-3C Maritime Patrol Aircraft time, to the allocation of specific capabilities at short notice in a national support emergency. National Support tasks include security, ceremonial, civil maritime surveillance, search and rescue, bush fire response and support to the Army / ATSIC community assistance program.

ADF support to the civil surveillance program, in consultation with Coastwatch, includes 250 flying hours by AP-3C surveillance aircraft, 1,800 Fremantle-class patrol boat days, and 240 Regional Surveillance Unit (RSU) patrol days. (In 2005-06 a total of 304 RSU patrol days were achieved.) Other qualitative performance targets are listed in the PBS.

From 2001-02 through to 2005-06 the ADF's contribution to the civil surveillance program was displaced by border protection operations (Op Relex/Cranberry) which nevertheless resulted in a higher overall rate of effort. There are currently four national support tasks, including Operation Resolute to protect Australia's Exclusive Economic Zone and Operation Deluge to support the 2007 APEC conference in Sydney.

Past Performance (Annual Report):

* estimate	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Achieved	Not Reported	Substantially Achieved
2001-02	-	Achieved	Not Reported	Achieved
2002-03	\$16 million*		Achieved	
2003-04	\$21 million		Achieved	
2004-05	\$23 million		Achieved	
2005-06	\$18 million		Achieved	
2006-07	\$24 million			
2007-08	\$20 million			



Output 2.1 Major Surface Combatant Operations (Navy Capabilities)

Force Structure & Role

Five (reducing to four by the end of 2007) 1980s **Adelaide class** (US Oliver Hazard Perry class) **Guided missile frigates (FFG)** plus eight newer German-designed and Australian-built **Anzac class frigates (FFH)**. Both vessels carry Harpoon anti-shipping missiles (Anzac currently being fitted), anti-submarine torpedoes and eventually Evolved Sea Sparrow surface-to-air missiles. Only the FFG are equipped with the more capable Standard surface-to-air missile (which are being upgraded to SM-2). The Anzac class have a 5" gun useful for shore bombardment (as seen in the Gulf in 2003) while the FFG has a less capable 3" gun. Both classes of vessel can embark a Seahawk anti-submarine helicopter, although the current availability and capability of these aircraft is less than desired. The Anzac class still awaits the entry into service of the long-delayed Super Seasprite helicopter.

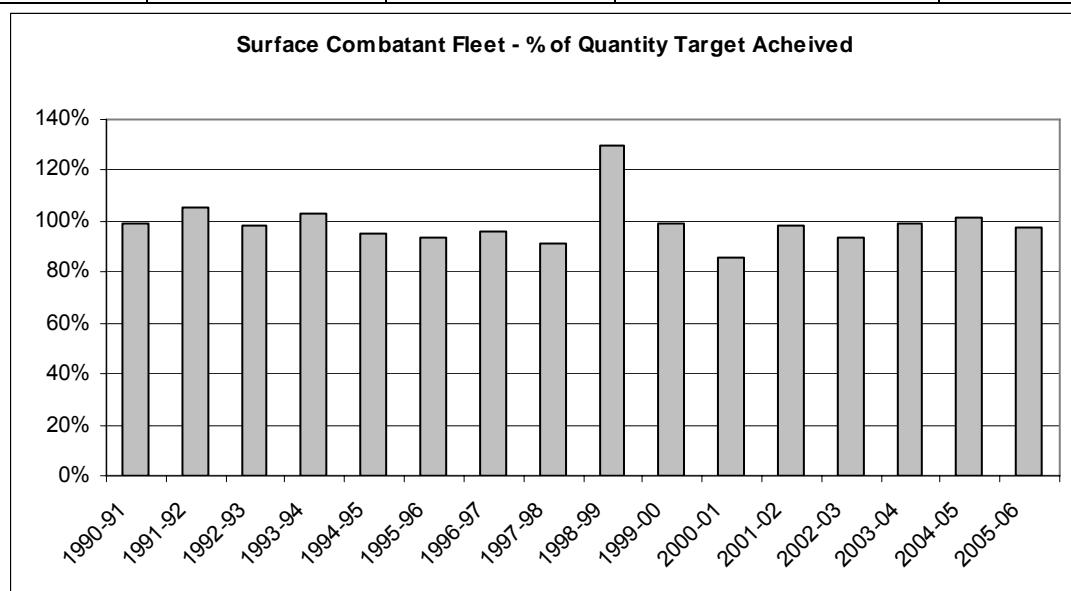
The FFH and FFG are Navy's fighting ships. They have the role of controlling sea-lanes, attacking hostile ships, submarines and aircraft, escorting shipping, protecting land forces and contributing to high intensity operations in coalition operations. They are sometimes tasked to undertake lesser roles like civil surveillance and border & fisheries protection.

Issues

- Issues for Navy in general include: personnel shortages, limited air-warfare, aviation and undersea warfare capabilities and force protection.
- In 2005-06 the major surface combatants achieved 2,972 Unit Ready Days (URD) against a target 3,043 URD (98%). The target for 2006-07 is 2,901 URD and for 2007-08 is 3,372 URD.

Past Performance (Annual Report):

* estimate only	Net Cost	Preparedness	Core Skills	Achieved Quantity
2000-01		Achieved	Substantially Achieved	86%
2001-02	-	Achieved	Substantially Achieved	98%
2002-03	\$1,277 million*	Achieved	Substantially Achieved	93%
2003-04	\$1,368 million	Achieved	Substantially Achieved	99%
2004-05	\$1,677 million	Achieved	Substantially Achieved	103%
2005-06	\$1,680 million	Achieved	Substantially Achieved	98%
2006-07	\$1,831 million			
2007-08	\$1,902 million			



Output 2.2 Naval Aviation Operations (Navy Capabilities)

Force Structure & Role

The RAN has sixteen 1980s US-designed **Seahawk helicopters** that can be embarked on the Anzac and FFG class frigates. They are configured for anti-submarine and surface search/targeting although the later role is increasingly less practiced. There are six 1970's UK-built **Sea King helicopters** used for troop lift and logistics tasks including from the Navy's amphibious and afloat support vessels. Thirteen **Squirrel light helicopters** are used for training and short-term operations at sea. In addition, ten Australian-designed **Kalkaras unmanned aerial targets** provide a training capability. At the time of writing, eleven **Super-Sprite helicopters** were still pending operational acceptance following an already long delay.

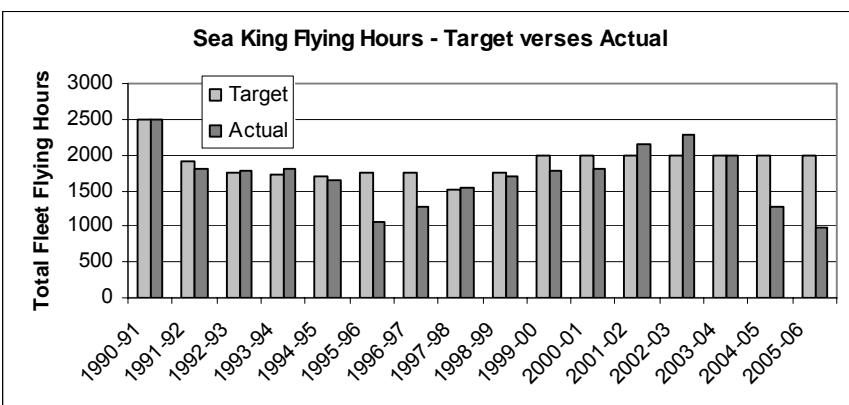
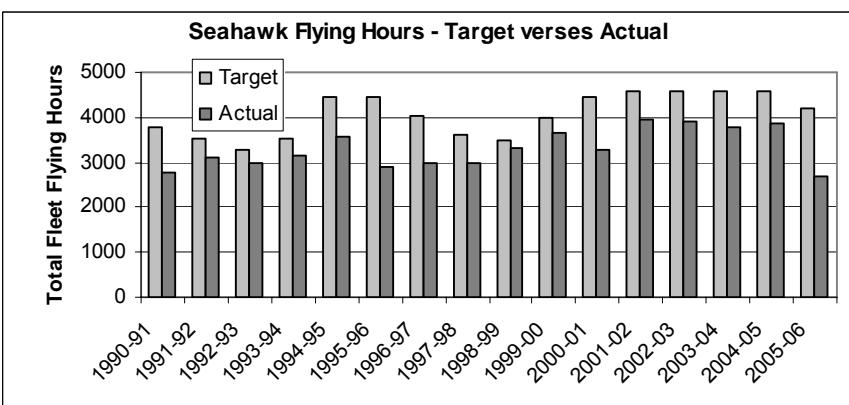
Issues

In 2005-06 maintenance and aircrew shortages negatively impacted Sea King preparedness and Seahawk and Squirrel flying hours. The grounding of the Super Seasprites until March 2006 reduced their flying hours substantially. In 2007-08 modifications to the Seahawk will see flying hours cut to 2,800 from a normal target around 4,500.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Achieved Quantity**
2000-01		Achieved	Achieved	79%
2001-02	-	Achieved	Achieved	92%
2002-03	\$393 million*	Achieved	Partially Achieved	94%
2003-04	\$520 million	Achieved	Substantially Achieved	94%
2004-05	\$567 million	Partially	Substantially Achieved	85%
2005-06	\$649 million	Partially	Substantially Achieved	63%
2006-07	\$612 million			
2007-08	\$641 million			

* estimate only **Sea King plus Seahawk & Super Seasprite percentage of planned flying hours achieved.



Output 2.3 Patrol Boat Operations (Navy Capabilities)

Force Structure & Role

All of Navy's fleet of 15 1980s vintage Australian-built, UK-designed, **Fremantle Class Patrol Boats (FCPB)** had been decommissioned by May 2007. This capability is progressively being replaced by the new **Armidale Class Patrol Boat (ACPB)**, of which eight (rising to 14 by early 2008) are now in service. These vessels are mainly tasked in support of Coastwatch's civil surveillance program (see Output 1.3) through Border Protection Command. They can also be used for the insertion and extraction of army patrols on the coast including Special Forces.

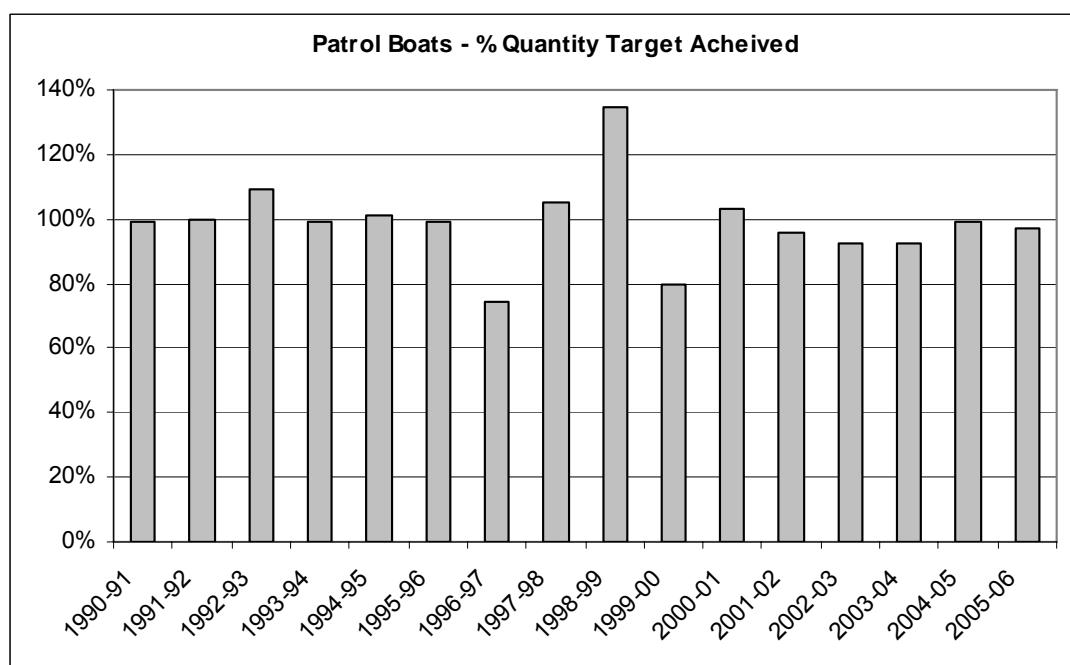
The patrol boat fleet also plays an important role in training junior officers by providing an opportunity for early independent command, and is an essential element in the ADF's engagement with South West Pacific nations.

Issues

- The *Armidale Class* boats have improved sea-keeping, sensors, armaments and habitability compared with the *Fremantle Class* vessels they are replacing. The fourteen replacement vessels are being delivered over the period April 2005 to early 2008.
- In 2005-06 the patrol boats achieved 4,692 Unit Ready Days (URD) against a target of 4,834 URD (97%). The target for 2006-07 is for 1,232 URD for the Fremantle class and 1,911 URD for the Armidale class, and for 2007-08 the target is 3,227 URD for the Armidale class.

Past Performance (Annual Report):

* estimate only	Net Cost	Preparedness	Core Skills	Achieved Quantity
2000-01		Partially Achieved	Achieved	103%
2001-02	-	Achieved	Achieved	96%
2002-03	\$240 million*	Achieved	Achieved	93%
2003-04	\$265 million	Achieved	Substantially Achieved	92%
2004-05	\$281million	Achieved	Achieved	98%
2005-06	\$282 million	Substantially	Achieved	97%
2006-07	\$248 million			
2007-08	\$277 million			



Note: Differing and incompatible quantity measures used over time have been converted to percentages.

Output 2.4 Submarine Operations (Navy Capabilities)

Force Structure & Role

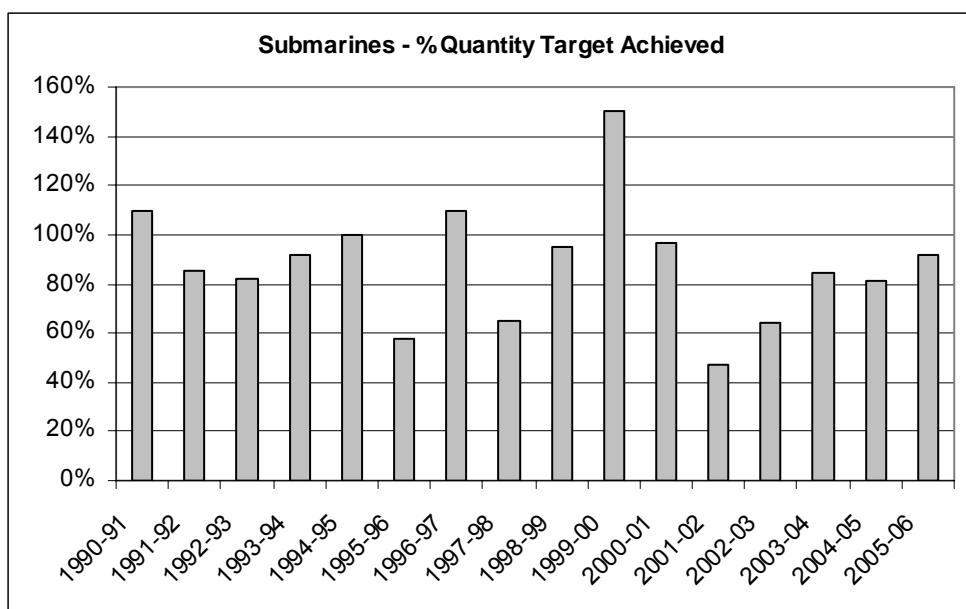
The RAN now has all six **Collins class submarines** at an interim level of capability. Their primary roles are to attack enemy shipping and to counter the threat of adversary submarines. In addition, they can collect intelligence and insert and extract Special Forces. The Collins Class is equipped with Harpoon anti-ship missiles and the US Mk 84 heavyweight torpedo.

Issues:

- The delay in the introduction of the Collins class into service as the Oberon class payed-off disrupted both submariner training and the retention of skilled personnel. This is now being corrected although a shortage of submariners is severely adversely impacting the Output.
- Around a billion dollars of additional work is planned in order to bring the vessels up to the required operational standard. This includes a new combat system to replace the current interim arrangements and replacement Mk 48 ADCAP CBASS torpedoes. These are technically challenging projects that are not without risk.
- A long-term \$3.5 billion contract is now in place for the maintenance of the Collins class with ASC.
- Three submarines (half the fleet) will be laid-up for maintenance for most of 2007-08.
- In 2005-06 the submarines achieved 1,432 Unit Ready Days (URD) against a target of 1,560 URD (92%). The target for 2006-07 is 1,265 URD and for 2007-08 is for 1,004 URD.

Past Performance (Annual Report):

* estimate only	Net Cost	Preparedness	Core Skills	Achieved Quantity
2000-01		Partially Achieved	Substantially Achieved	97%
2001-02	-	Partially Achieved	Substantially Achieved	47%
2002-03	\$650 million*	Partially Achieved	Substantially Achieved	65%
2003-04	\$845 million	Substantially Achieved	Substantially Achieved	85%
2004-05	\$795 million	Substantially Achieved	Achieved	81%
2005-06	\$825 million	Substantially Achieved	Achieved	92%
2006-07	\$790 million			
2007-08	\$815 million			



Output 2.5 Afloat Support (Navy Capabilities)

Force Structure & Role:

HMAS Sirius: South Korean-built 46,017 tonne full displacement commercial vessel, that was refitted to Navy specifications as an Auxiliary Tanker (AO), and

HMAS Success: 1980s French-designed, Australian-built 17,900 tonnes full displacement Auxiliary Replenishment Tanker (AOR).

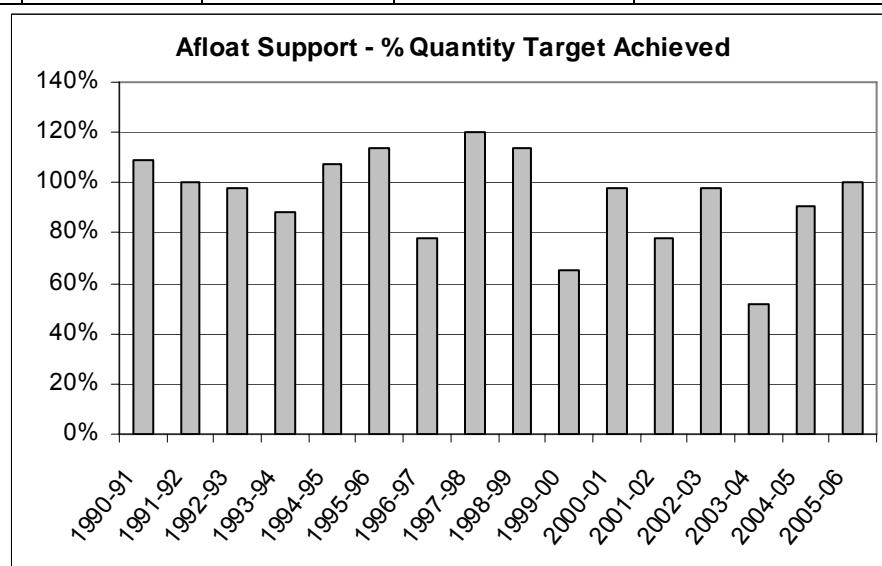
The role of the afloat support force is to refuel and re-supply Navy vessels and embarked helicopters at sea, and provide logistics support to land operations.

Issues:

- **HMAS Westralia** was replaced by **HMAS Sirius** in September 2006 on schedule.
- **HMAS Success** is scheduled to undergo a refit in 2007-08.
- The target for *Westralia/Sirius* in 2006-07 is 321 URD and for 2007-08 is 366 URD. The target for *Success* in 2006-07 is 190 URD and for 2007-08 is 227 URD.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Achieved Quantity
2000-01	-	Substantially Achieved	Substantially Achieved	Replenishment Ship: 98% Oiler-Tanker Ship: 97%
2001-02	-	Achieved	Achieved	Replenishment Ship: 30% Oiler-Tanker Ship: 100%
2002-03	\$200 million (estimate only)	Substantially Achieved	Achieved	Replenishment Ship 109% Oiler-Tanker Ship 89%
2003-04	\$197 million	Substantially Achieved	Achieved	Replenishment Ship 105% Oiler-Tanker Ship 0%
2004-05	\$215 million	Achieved	Achieved	Replenishment Ship 85% Oiler-Tanker Ship 91%
2005-06	\$252 million	Achieved	Achieved	Replenishment Ship 100% Oiler-Tanker Ship 100%
2006-07	\$235 million			
2007-08	\$264 million			



Note: Differing and incompatible quantity measures used over time have been converted to percentages.

Output 2.6 Mine Warfare (Navy Capabilities)

Force Structure & Role:

6 Houn Class Coastal Mine Hunters (MHC) – 720 tonnes displacement, plastic hulled, Italian-designed and built in Australia in the late 1990's. The ships employ sonar to search for mines which can then be destroyed using a remote controlled mine disposal vehicle or otherwise.

2 Auxiliary Mine Sweepers – 1980's converted tugs that physically sweep for mines.

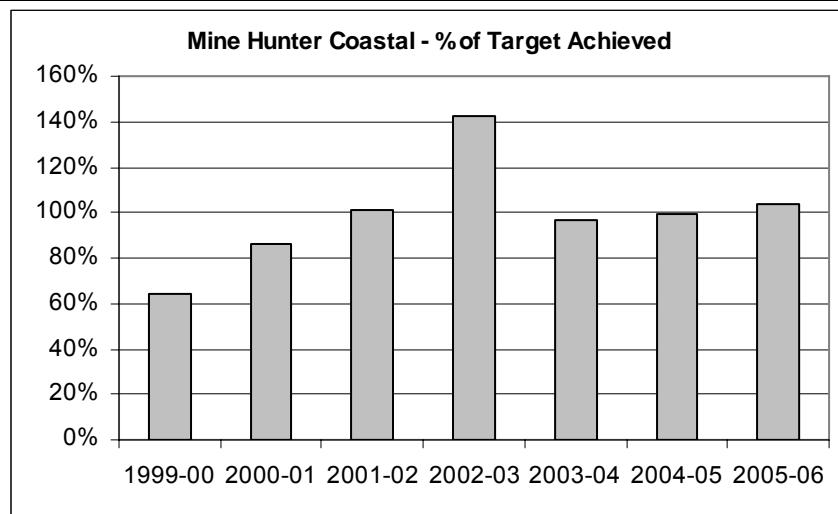
2 Clearance Diving Teams – one on each coast at Sydney and Perth capable of clearing mines and other ordinance, clandestine survey and obstacle clearance, and submerged battle damage repairs.

Issues:

- Due to resource constraints, 2 of the Coastal Mine Hunters were to be taken out of service and placed in 'extended readiness' in January and April 2006. This was countermanded in the 2006-07 budget and the 2 vessels were reactivated for border protection duties.
- The targets for 2006-07 are Coastal Mine Hunters 1,807 URD, Auxiliary Minehunters 730 URD, and Clearance Diving Teams 730 URD. The targets for 2007-08 are Coastal Mine Hunters 2,085 URD, Auxiliary Minehunters 732 URD, and Clearance Diving Teams 732 URD.

Past Performance (Mine Hunter Coastal):

	Net Cost	Preparedness	Core Skills	Achieved Quantity
2000-01	-	Partially Achieved	Substantially Achieved	Achieved: 86% 543 MLOC days 2 vessels
2001-02	-	Substantially Achieved	Achieved	Achieved: 101% 392 FMC days 4 vessels
2002-03	\$308 million (estimate only)	Achieved	Achieved	Achieved: 142% 997 FMC days 6 vessels
2003-04	\$386 million	Achieved	Substantially Achieved	Achieved: 97% 1,669 FMC days 6 vessels
2004-05	\$439 million	Substantially Achieved	Achieved	Achieved: 99% 1,890 URD days 6 vessels
2005-06	\$354 million	Achieved	Achieved	Achieved: 104% 2,016 URD days 6 vessels
2006-07	\$356 million			
2007-08	\$388 million			



Note: Differing and incompatible quantity measures used over time have been converted to percentages.

Output 2.7 Amphibious Lift (Navy Capabilities)

Force Structure & Role:

2 Kanimbla Class Landing Platforms Amphibious (LPA), HMAS Manoora and HMAS Kanimbla: refurbished in the mid-to-late 1990's from 2 second-hand 1970's US Newport Class Landing Ship Tank vessels. They displace 8,450 tonnes and can carry 450 troops along with vehicles and landing craft. In addition, they have been fitted with medical and command & control facilities, and have the ability to house up to four troop lift helicopters.

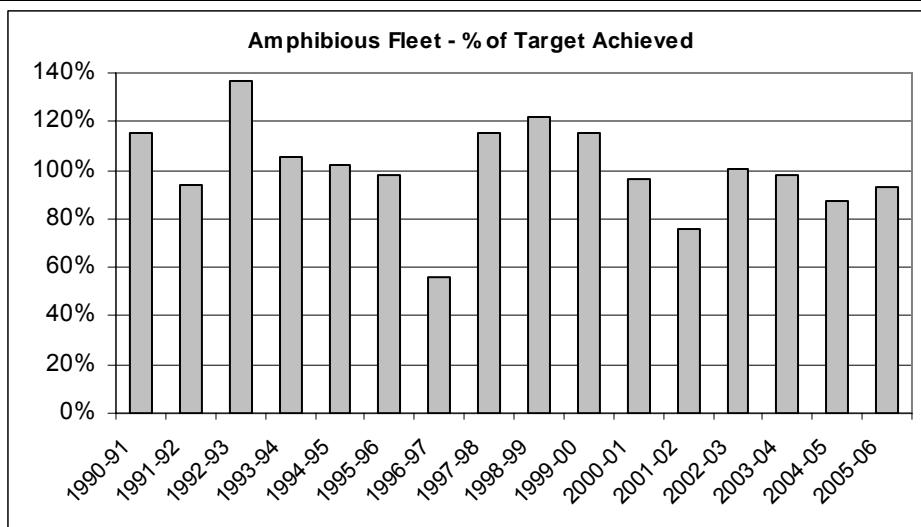
1 Heavy Landing Ship (HLS), HMAS Tobruk: a 1980's UK-designed and Australian built vessel capable of carrying 315 soldiers, 18 tanks and 40 armoured personnel carriers. She displaces 5,800 tonnes and can operate any ADF helicopter from her deck.

6 Landing Craft Heavy (LCH): a fleet of 1970's craft that can carry a load of up to 180 tonnes a distance of over 1,200 nautical miles. Each vessel can carry three Leopard tanks, twenty-three quarter-tonne trucks or thirteen armoured personnel carriers. The LCH completed a life-of-type extension in 2003.

Targets for 2006-07 (2007-08) are LPA 577 (366) Unit Ready Days, Tobruk 219 (605) Unit Ready Days and LCH 2,013 (2,066) Unit Ready Days.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01	-	Achieved	Achieved	LPA: 95% 424 MLOC days HLS: 98% 256 MLOC days LCH: 97% 1678 MLOC days
2001-02	-	Achieved	Partially Achieved	LPA: 96% 485 FMC days HLS: 49% 126 FMC days LCH: 73% 1019 FMC days
2002-03	\$338 million (estimate only)	Achieved	Partially Achieved	LPA: 106% 601 FMC days HLS: 93% 247 FMC days LCH: 99% 1159 FMC days
2003-04	\$372 million	Achieved	Substantially Achieved	LPA: 91% 518 URD HLS: 114% 336 URD LCH: 98% 2029 URD
2004-05	\$406 million	Achieved	Substantially Achieved	LPA: 67% 408 URD HLS: 100% 365 URD LCH: 91% 1743 URD
2005-06	\$439 million	Achieved	Achieved	LPA: 99% 551 URD HLS: 126% 277 URD LCH: 87% 1769 URD
2006-07	\$394 million			
2007-08	\$425 million			



Note: Differing and incompatible quantity measures used over time have been converted to percentages.

Output 2.8 Hydrographic, Metrological & Oceanographic Ops (Navy Capabilities)

Force Structure & Role:

Hydrographic, meteorological and oceanographic operations for the production of maritime military geospatial information for the ADF. This output is also responsible for national hydrographic surveying and charting. The hydrographic component is supported by the Australian Hydrographic Office in Wollongong, NSW, and also comprises the Hydrographic Office deployable survey unit. Meteorological and Oceanographic support is conducted by mobile teams, the operational Meteorological and Oceanographic Centre in Sydney, NSW, and the Naval Air Station Weather and Oceanographic Centre in Nowra, NSW.

2 Leeuwin Class Hydrographic Ships (AGHS): 2,250 tonne Australian-built hydrographic ships.

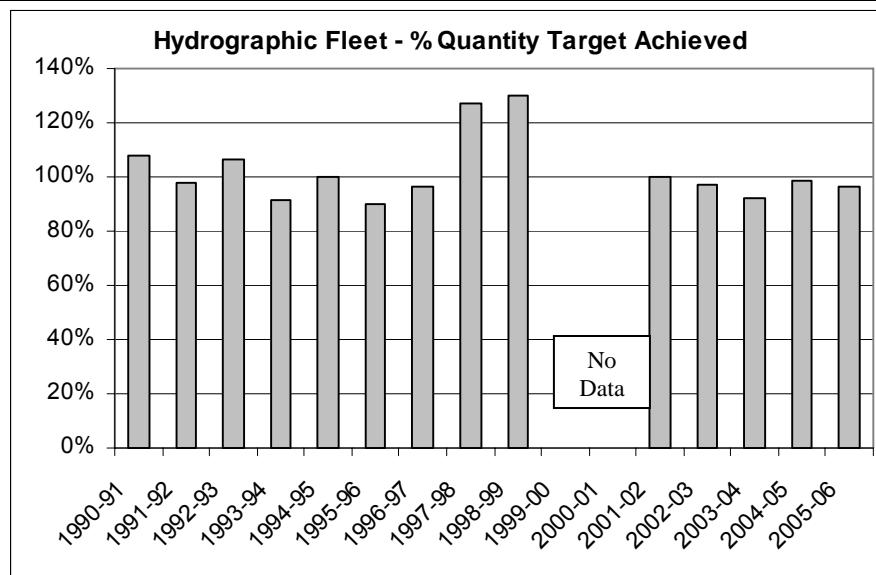
4 Paluma Class Survey Motor Launches (SML): 305 tonne Australian-built survey launches.

1 Laser Airborne Depth Sounder (LADS) aircraft: an airborne depth sounder capability used in shallow water.

Issues: In 2006-07 (2007-08) the targets are: Hydrographic Ships 730 (732) Unit Ready Days and SM Launches 1,318 (1,184) Unit Ready Days.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01	-	Partially Achieved	Not Applied	Partially Achieved (nil data on MLOC days)
2001-02	-	Substantially Achieved	Partially Achieved	Hydrographic Ships: 105% 627 FMC days SM Launches 97% 1012 FMC days
2002-03	\$165 million (estimate only)	Substantially Achieved	Partially Achieved	Hydrographic Ships: 94% 498 FMC days SM Launches: 99% 913 FMC days
2003-04	\$225 million	Substantially Achieved	Achieved	Hydrographic Ships: 81% 592 URD SM Launches: 98% 1,432 URD
2004-05	\$255 million	Substantially Achieved	Achieved	Hydrographic Ships: 97% 691 URD SM Launches: 100% 1,324 URD
2005-06	\$230 million	Achieved	Achieved	Hydrographic Ships: 100% 730 URD SM Launches: 94% 1,105 URD
2006-07	\$219 million			
2007-08	\$300 million			



Note: Differing and incompatible quantity measures used over time have been converted percentages.

Output 3.1 Special Operations (Army Capabilities)

Force Structure & Role (previously called *Special Forces Operations*):

One **Special Air Services Regiment (SASR)** in Western Australia. Roles include special recovery (including domestic and overseas counter terrorism by the west coast Tactical Assault Group - TAG), long-range reconnaissance and offensive operations.

One full time **Commando Regiment - 4 RAR (Cdo)** in Sydney including the east coast TAG.

One **reserve Commando Regiment 1 Cdo Regt** split between Sydney and Melbourne. Roles include land, sea- and air-borne offensive commando raids.

126 Commando Signals Squadron in Sydney provides a reserve special forces signals capability and **152 Signals Squadron** in Perth provides a similar full time capability.

There is also an **Incident Response Regiment** based in Sydney that is capable of dealing with nuclear, chemical and biological incidents, plus a **Special Forces Logistics Squadron** in Sydney and a Special Forces Training Centre.

The 2004-05 budget established the **Special Operations Command** in Sydney as well as an additional company for 4RAR (Cdo) plus support elements.

Issues:

- A very high operational tempo has been maintained by the SASR over the last five years. The 2001-02 Annual Report said that there had been a significant drop in preparedness and core skills as a result. However, and despite a continuing high operational tempo in 2002-03 including deployment to Iraq, there were marked improvements in the areas of preparedness and core skills that year. The failure to fully achieve core skills in 2002-03 was due to a number of training activities and exercises being foregone due to operations or the development of new capabilities. However, in 2003-04, 2004-05 and 2005-06 the Output achieved all its targets for preparedness, core skills and quantity.
- A 300 person Special Forces Task Group is currently being deployed to Afghanistan.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Achieved	Achieved	Achieved
2001-02		Partially Achieved	Partially Achieved	Achieved
2002-03	\$458 million (estimate only)	Achieved	Substantially Achieved	Achieved
2003-04	\$423 million	Achieved	Achieved	Achieved
2004-05	\$454 million	Achieved	Achieved	Achieved
2005-06	\$490 million	Achieved	Achieved	Achieved
2006-07	\$562 million			
2007-08	\$581 million			

Output 3.2 Medium Combined Arms Operations (Army Capabilities)

Force Structure & Role (previously called Mechanised Operations):

Based around the Darwin's **1st Brigade (1 Bde)** which includes:

The **1st Armoured Regiment** equipped with 1970s German-made Leopard AS1 tanks and reconditioned US-made MIAI Abrams tanks.

The **2nd Cavalry Regiment** (reconnaissance) equipped with 1990s North American-designed but Australian modified ASLAV light armoured vehicles.

5th and 7th Battalions Royal Australian Regiment - mechanised infantry battalions equipped with 1960s US-made M113 armoured personnel carriers and Australian-made Bushmaster infantry mobility vehicles.

8th/12th Medium Regiment (artillery) equipped with US-made 155mm M198 Medium Howitzers and the 105mm L119 Hamel light gun.

In addition, 1st Brigade includes extensive organic logistics and engineer support including 1 Combat Engineer Regiment, 1 Combat Service Battalion, 1 Combat Service Support Battalion and 1 Communications Support Regiment.

The mechanised force fights in combined arms teams using mobility and firepower.

Issues:

- Personnel shortages (particularly in key trades) and equipment deficiencies continued to compromise the attainment of performance targets for the output in 2005-06 as they did in 2002-03, 2003-04 and 2004-05.
- Abrams Main Battle Tanks are progressively replacing the fleet of Leopards. These are scheduled to enter service between 2007 and 2009 at a cost of around \$550 million. Additional ASLAV light armoured vehicles are also being acquired.
- In 2005-06, a number of training activities had to be reduced in scope because of high operational commitments.
- Steps are being taken to address recruiting and retention problems.
- The 5th/7th Battalion has been split into the 5th Battalion and 7th Battalion. The 5th Battalion reformed in a largely mature state, which included a company serving on operations in Iraq. The 7th Battalion reformed with a company on operations in Afghanistan. This unit will be based in Adelaide, SA.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, including the provision of a **battalion-sized group within 90 days readiness** and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Partially Achieved	Partially Achieved	Partially Achieved
2001-02		Partially Achieved	Partially Achieved	Partially Achieved
2002-03	\$818 million (estimate only)	Partially Achieved	Partially Achieved	Substantially Achieved
2003-04	\$847 million	Partially Achieved	Partially Achieved	Substantially Achieved
2004-05	\$835 million	Partially Achieved	Partially Achieved	Substantially Achieved
2005-06	\$816 million	Partially Achieved	Partially Achieved	Substantially Achieved
2006-07	\$955 million			
2007-08	\$1,116 million			

Output 3.3 Light Combined Arms Operations (Army Capabilities)

Force Structure & Role (previously called *Light Infantry Operations*):

Based around the Queensland-based **3rd Brigade** which includes:

Two light infantry battalions; **1st Battalion Royal Australian Regiment** (1 RAR) and **2 RAR** (Townsville),

One parachute infantry battalion, **3 RAR** (Sydney),

4th Field Regiment (artillery) equipped with the 105mm L119 Hamel light gun,

B Squadron 3rd/4th Cavalry Regiment with Bushmaster infantry mobility vehicles, and organic engineer and logistics support including 3 Combat Engineer Regiment, 3 Combat Service Battalion and 3 Communications Support Regiment.

The brigade includes a **Parachute Battalion Group** comprising 3 RAR along with airborne medical, artillery and other support elements.

The role of infantry is to seek out and close with the enemy, to kill or capture him, to seize and hold ground, to repel attack, by day or night, regardless of season, weather, or terrain.

Issues:

- According to the 2003-04, 2004-05 and 2005-06 Defence Annual Reports, most training requirements were met although some airborne and amphibious training was restricted due to reduced availability of aircraft and amphibious vessels, because of operational commitments to Iraq and Solomon Islands.
- Sydney-based 3 RAR will be re-roled as a light infantry battalion and will relocate to Townsville, Qld.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, including the provision of a **three battalion-sized group within 90 days** readiness and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Substantially Achieved	Achieved	Substantially Achieved
2001-02		Partially Achieved	Substantially Achieved	Achieved
2002-03	\$1,043 million (estimate only)	Achieved	Substantially Achieved	Achieved
2003-04	\$900 million	Achieved	Substantially Achieved	Achieved
2004-05	\$1,009 million	Achieved	Substantially Achieved	Achieved
2005-06	\$964 million	Achieved	Substantially Achieved	Achieved
2006-07	\$1,007 million			
2007-08	\$1,049 million			

Output 3.4 Army Aviation (Army Capabilities)

Force Structure & Role:

Army aviation is based around **16 Bde** that commands the **1st and 5th Aviation Regiments**, which have components in Oakey & Townsville in Queensland, Darwin, Northern Territory, and Sydney, New South Wales.

The force structure includes thirty-four 1970s-designed **Black Hawk troop lift helicopters**, 41 1970s-designed **Kiowa light observation & training helicopters**, twenty-five 1960s-designed **Iroquois troop lift and fire support helicopters** and six 1960s-designed **Chinook medium lift helicopters**. All these helicopters are of US design.

Six of an eventual fleet of twenty-four European-designed **Tiger Armed Reconnaissance Helicopters** (ARH) are now flying.

Three **Super King Air fixed wing aircraft** are used for surveillance and command & control support.

The role of Army Aviation is to provide troop and logistics transport, surveillance, reconnaissance, aerial fire support and command & control support.

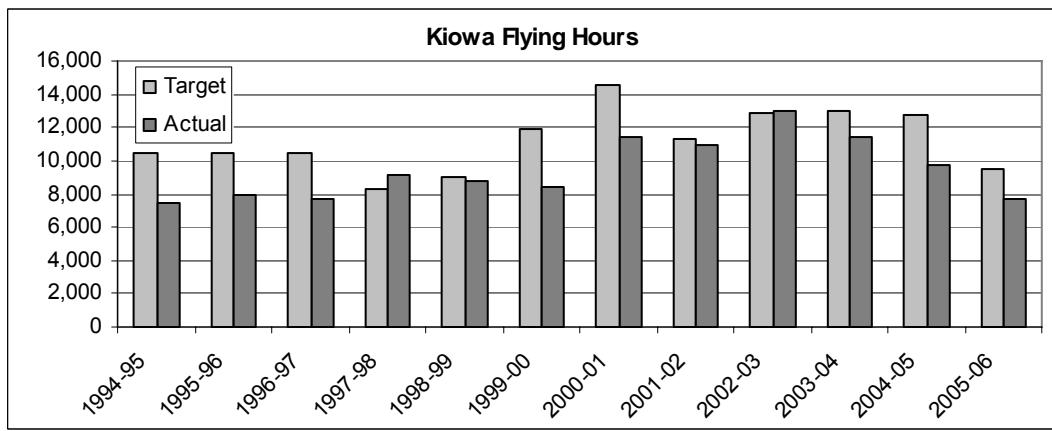
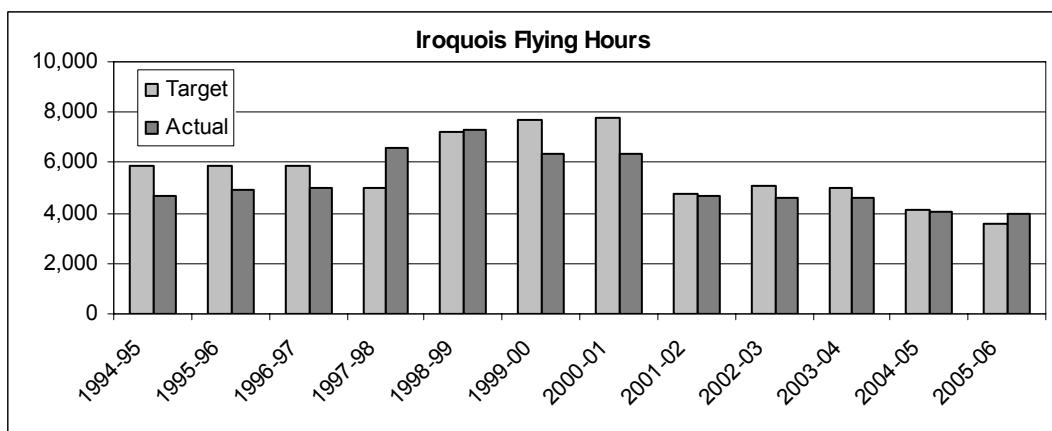
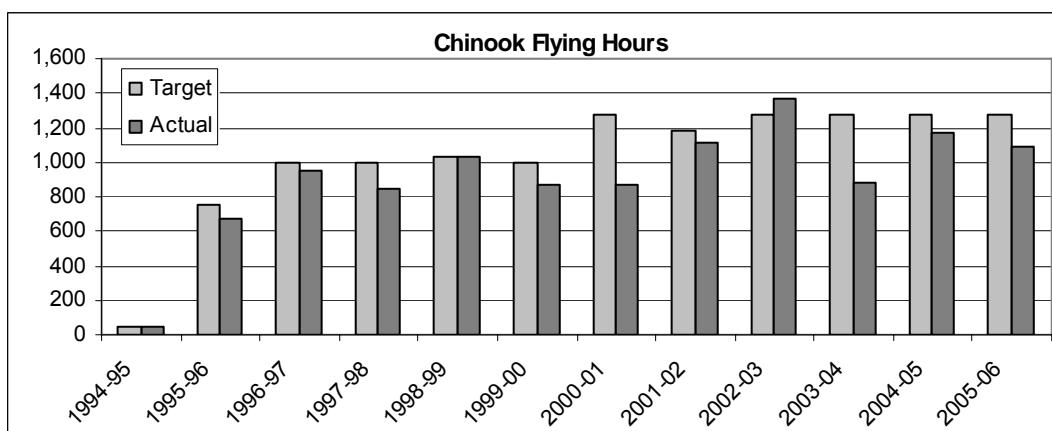
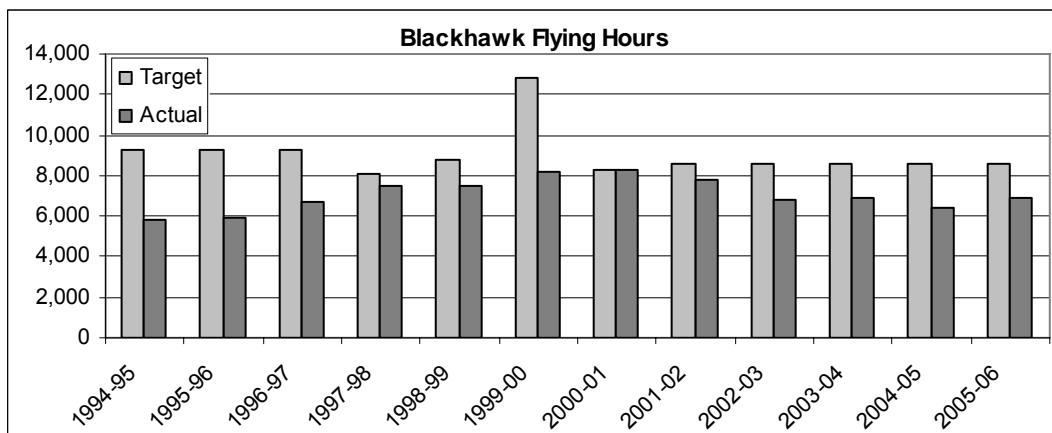
Issues:

- The ARH entered service in December 2004 in an interim configuration; there are still milestones to be reached before it is an operational capability.
- In 2005-06, the Kiowas achieved only 70% of their planned flying hours due to shortages of trained crew, facilities delays and a shortfall of senior maintenance supervisors.
- In 2005-06 fully 90% of planned flying hours for the new Tiger helicopters were achieved, the remaining 10% did not occur due to delays in the acceptance testing and training program.
- The Black Hawk fleet achieved only 92% of planned flying hours due to unplanned maintenance, and the Chinooks only 86% due to pre-deployment modifications.
- The Iroquois fleet will be replaced by twelve MRH-90 troop lift helicopters, with an in-service-date of 2008. These aircraft will be configured to operate from the Navy's LPA and future LHD vessels.
- The Black Hawk fleet will be retired between 2011 and 2015, and replaced with an additional 28 MRH-90 helicopters.
- The Kiowa fleet will be withdrawn from the reconnaissance role as the ARH enter service.

Past Performance: (*% of planned Black Hawk, Chinook, Iroquois & Kiowa flying hours)

	Net Cost	Preparedness	Core Skills	Quantity*
2000-01		Substantially Achieved	Substantially Achieved	Partially Achieved (91%)
2001-02		Achieved	Substantially Achieved	Substantially Achieved (95%)
2002-03	\$454 million (estimate only)	Achieved	Substantially Achieved	Substantially Achieved (93%)
2003-04	\$593 million	Achieved	Substantially Achieved	Substantially Achieved (86%)
2004-05	\$564 million	Achieved	Substantially Achieved	Substantially Achieved (80%)
2005-06	\$528 million	Achieved	Achieved	Substantially Achieved (86%)
2006-07	\$569 million			
2007-08	\$587 million			

Flying hour charts appear overleaf.



Output 3.5 Ground Based Air Defence (Army Capabilities)

Force Structure & Role:

16th Air Defence Regiment in South Australia, equipped with the **Swedish RBS 70** shoulder launched, optically guided, surface-to-air missile. This weapon was first developed in the 1970s and is classed as a short-range system. The towed surface-to-air **Rapier** RF-guided anti-aircraft missile system has now been retired from service.

The role of ground based air defence is to shoot down hostile enemy aircraft.

Issues:

- In 2003-04 and 2004-05 shortages in critical trades personnel (particularly tradesmen and air defence gunners) and ammunition prevented full achievement of preparedness targets. Ammunition deficiencies were to be resolved through a long-term contract with the missile producer. However, in 2005-06 the delivery of ammunition (and equipment) was delayed due to the limited capacity of the manufacturer.
- Project Land 19 (\$100-150 million) is extending the life and enhancing the capability of the existing RBS 70 systems through improved sensors and a night operating capability. The project recently also acquired an RBS simulator to improve training. In the longer term, Land 19 will replace the existing Rapier systems with additional RBS 70 weapons.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity*
2000-01		Partially Achieved	Substantially Achieved	Partially Achieved
2001-02		Partially Achieved	Substantially Achieved	Partially Achieved
2002-03	\$108 million (estimate only)	Substantially Achieved	Substantially Achieved	Partially Achieved
2003-04	\$123 million	Substantially Achieved	Substantially Achieved	Partially Achieved
2004-05	\$121 million	Partially Achieved	Substantially Achieved	Partially Achieved
2005-06	\$108 million	Partially Achieved	Substantially Achieved	Partially Achieved
2006-07	\$116 million			
2007-08	\$126 million			

Output 3.6 Combat Support Operations (Army Capabilities)

Force Structure & Role:

Combat Support Operations includes all non-logistic support to combat operations that is not embedded within Army's brigades. As such, it does not represent any single capability nor formation, although most of its components report directly to land HQ.

Accordingly, the sub-output includes a diverse collection of units including

- HQ 6th Engineer Support Regiment,**
- 21st Construction Regiment (Sydney),**
- 22nd Construction Regiment (Melbourne),**
- 17th Construction Squadron (Sydney),**
- 21st Construction Squadron (Brisbane),**
- 19th Construction Engineer Works Section (Sydney),**
- 1st Topographical Survey Squadron (Enoggera, QLD),**
- Combat Training Centre (Townsville),**
- 20th Surveillance and Target Acquisition Regiment (Brisbane),**
- 7th Signals Regiment - Electronic Warfare (Carbalah, Qld),**
- 110th Signals Squadron (Sydney),**
- 1st Military Police Battalion (Sydney), and**
- 1st Intelligence Battalion (Sydney)**

Issues:

- Over the past five years this Output has experienced personnel shortages, especially in critical trade areas which are inherent to many of the specialist units. These shortages are being progressively addressed through a 'critical trades remediation plan'.
- In addition, equipment deficiencies resulted in less than full achievement against preparedness, core skills and quantity in 2003-04. This is being addressed through new acquisitions and some redistribution of assets.
- Some training requirements were not met in 2003-04, 2004-05 and 2005-06 because of operational deployments and shortfalls in personnel in critical trades.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Substantially Achieved	Substantially Achieved	Partially Achieved
2001-02		Substantially Achieved	Substantially Achieved	Partially Achieved
2002-03	\$386 million (estimate only)	Substantially Achieved	Substantially Achieved	Substantially Achieved
2003-04	\$411 million	Substantially Achieved	Substantially Achieved	Substantially Achieved
2004-05	\$504 million	Substantially Achieved	Substantially Achieved	Substantially Achieved
2005-06	\$378 million	Substantially Achieved	Substantially Achieved	Substantially Achieved
2006-07	\$436 million			
2007-08	\$457million			

Output 3.7 Regional Surveillance (Army Capabilities)

Force Structure & Role:

This is the smallest of all the Army outputs, being made up of three regional surveillance units that are predominately manned by reserve personnel. These are:

51st Battalion Far North Queensland Regiment (Cairns, Qld.) responsible for conducting reconnaissance and surveillance over 640,000 square km in Far North Queensland and the Gulf country;

The West Australian based **Pilbara Regiment** (Karratha WA) with 1.3 million square km to cover from the Kimberley boundary in the north, to Shark Bay in the south, then east to the NT/SA/WA border; and

North West Mobile Force (NORFORCE) (Darwin) which covers the Northern Territory and the Kimberly region of Northern Western Australia, an area of operations covering nearly one quarter of Australia's land mass – 1.8 million square kilometres.

The three regional surveillance units are also responsible for offshore islands and the Pilbara Regiment has specific responsibility for the oil and gas infrastructure on the northwest shelf.

Issues:

- Unique among Army sub-outputs, the three regional surveillance units have achieved their targets for preparedness, core skill and quantity five years in a row.
- During 2005-06 a total of 304 patrol days by Regional Force Surveillance units were delivered against a target of only 240.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Not Applied	Not Applied	Not Applied
2001-02		Achieved	Achieved	Achieved
2002-03	\$108 million (estimate only)	Achieved	Achieved	Achieved
2003-04	\$128 million	Achieved	Achieved	Achieved
2004-05	\$132 million	Achieved	Achieved	Achieved
2005-06	\$127 million	Achieved	Achieved	Achieved
2006-07	\$153 million			
2007-08	\$164 million			

Output 3.8 Land Operational Logistics Support (Army Capabilities)

Force Structure & Role:

The Logistics Support Force (LSF) is a brigade sized grouping of reserve, integrated and permanent ADF units which can sustain a brigade on operations for extended periods while concurrently maintaining a battalion group elsewhere.

It provides supply, fuel, communications, transport (surface vehicle and small watercraft), repair, health and psychology capabilities. **17th Combat Service Support Brigade HQ (Sydney)**

2nd (Glenorchy, Tas), 9th (Sydney) & 10th (Townsville) Force Support Battalions,

1st (Sydney), 2nd (Brisbane) & 3rd (Adelaide) Health Support Battalions,

130th & 145th Signals Squadrons (Sydney),

Deployed Forces Support Unit (Sydney),

Force Support Group HQ (Sydney),

1st Psychology Unit (Sydney),

1st Petroleum Company (Oakley South, Vic), and

3rd Recovery Company (Dandenong, Vic), a logistics support force workshop and Ships Army Detachments on HMAS Tobruk and the two LPA vessels.

Issues:

- The high operational tempo over the last several years has seen parts of the Output deploy frequently in support of operations.
- Over the last five years the Output has experienced personnel shortages especially in a number of key trade areas. This has contributed to targets not being met in preparedness, core skills and quantity for the last four years.
- Equipment deficiencies have also adversely impacted the output over the past four years.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Substantially Achieved	Substantially Achieved	Substantially Achieved
2001-02		Substantially Achieved	Substantially Achieved	Partially Achieved
2002-03	\$448 million (estimate only)	Substantially Achieved	Substantially Achieved	Substantially Achieved
2003-04	\$534 million	Substantially Achieved	Substantially Achieved	Substantially Achieved
2004-05	\$542 million	Partially Achieved	Partially Achieved	Partially Achieved
2005-06	\$557 million	Partially Achieved	Partially Achieved	Partially Achieved
2006-07	\$580 million			
2007-08	\$604 million			

Output 3.9 Motorised Combined Arms Operations (Army Capabilities)

Force Structure & Role (previously called *Motorised Infantry Operations*):

Motorised Combined Arms Operations are based around the mostly medium readiness 7 Brigade (7 Bde).

It is an integrated integrated-regular formation including a HQ in Enoggera, Queensland, and including three motorised and light infantry battalions;

6th Battalion Royal Australian Regiment (Brisbane),

9th Battalion Royal Queensland Regiment (Brisbane),

25th/49th Battalion Royal Queensland Regiment (Brisbane and Darling Downs region), and the

2nd/14th Light Horse Regiment (Queensland Mounted Infantry) (Recon) (Brisbane),

1st Field Regiment (artillery) (Brisbane)

2nd Combat Engineer Regiment,

7th Combat Support Regiment and 7th Combat Services Support Battalion.

Issues:

- For several years now, the Motorised Combined Arms Operations Output has suffered from equipment deficiencies, personnel shortfalls in key trades and sustainability issues. On top of this, operational commitments have contributed to some collective training being foregone.
- The Output has a significant Reserve component which is under-staffed due to lower than expected recruiting results.
- Equipment deficiencies are being addressed through the acquisition of new equipment and the redistribution of existing equipment to priority areas. This includes upgraded ASLAV light armoured vehicles and new Bushmaster infantry mobility vehicles.
- 8/9 Battalion Royal Australian Regiment will be re-raised as a light infantry unit under the command of 7 Bde at a time that is not yet determined.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months, including the provision of a **battalion-sized group within 90 days** readiness and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity*
2000-01		Partially Achieved	Partially Achieved	Substantially Achieved (Regular) Partially Achieved (Reserve)
2001-02		Partially Achieved	Partially Achieved	Substantially Achieved (Regular) Partially Achieved (Reserve)
2002-03	\$591 million (estimate only)	Partially Achieved	Partially Achieved	Substantially Achieved (Regular) Partially Achieved (Reserve)
2003-04	\$497 million	Partially Achieved	Partially Achieved	Substantially Achieved (Regular) Partially Achieved (Reserve)
2004-05	\$518 million	Partially Achieved	Partially Achieved	Substantially Achieved (Regular) Partially Achieved (Reserve)
2005-06	\$536 million	Partially Achieved	Partially Achieved	Substantially Achieved (Regular) Partially Achieved (Reserve)
2006-07	\$596 million			
2007-08	\$620 million			

Output 3.10 Protective Operations (Army Capabilities)

Force Structure & Role:

The protective operations sub-output includes all those reserve units not attributed to other sub-outputs. It is structured around 6 infantry brigades each of which has a HQ, two or three infantry battalions, an armoured reconnaissance unit and combat and logistics support units. These are:

- 4th Brigade** in Melbourne,
- 5th & 8th Brigades** in Sydney,
- 9th Brigade** in Adelaide and Hobart,
- 11th Brigade** in Townsville, and
- 13th Brigade** in Perth

Issues:

- During 2002-03 a Reserve Response Force was established. It comprises a company sized Response Force in each of the six Reserve Brigades, plus the 1 Commando Regiment in Sydney and Melbourne.
- This 2005-06 budget announced a number of Reserve retention initiatives, including some tailored for the new High Readiness Reserve that will be progressively built up over the remainder of the decade.
- In 2005-06 this output provided troops for the transit security element of border protection operations (OP Acolyte) and a section for security tasks in the Solomon Islands.
- The output continues to provide personnel to supplement the permanent force.

Performance Target:

Achieve levels of preparedness directed by the Chief of the Defence Force for military response options with a warning time of less than 12 months and achieve a level of training that maintains core skills and professional standards across all warfare areas.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Achieved	Partially Achieved	Partially Achieved
2001-02		Achieved	Partially Achieved	Partially Achieved
2002-03	\$569 million (estimate only)	Partially Achieved	Partially Achieved	Partially Achieved
2003-04	\$632 million	Partially Achieved	Partially Achieved	Partially Achieved
2004-05	\$737 million	Partially Achieved	Partially Achieved	Partially Achieved
2005-06	\$673 million	Achieved	Partially Achieved	Partially Achieved
2006-07	\$1,062 million			
2007-08	\$1,089 million			

Output 4.1 Air Combat (Part 1 - Strike Reconnaissance)

Force Structure & Role:

17 F-111C Strike Aircraft: 1960s design US-made supersonic bombers (plus 12 F-111G in storage and 2 being used for spares). The F-111C aircraft provide a long-range strike capability that can bomb targets in adversary territory or attack vessels using the Harpoon anti-shipping missile. The F-111C is equipped with a precision bombing laser designation capability.

4 RF-111C Strike Reconnaissance Aircraft: for aerial photographic reconnaissance and battle damage assessment.

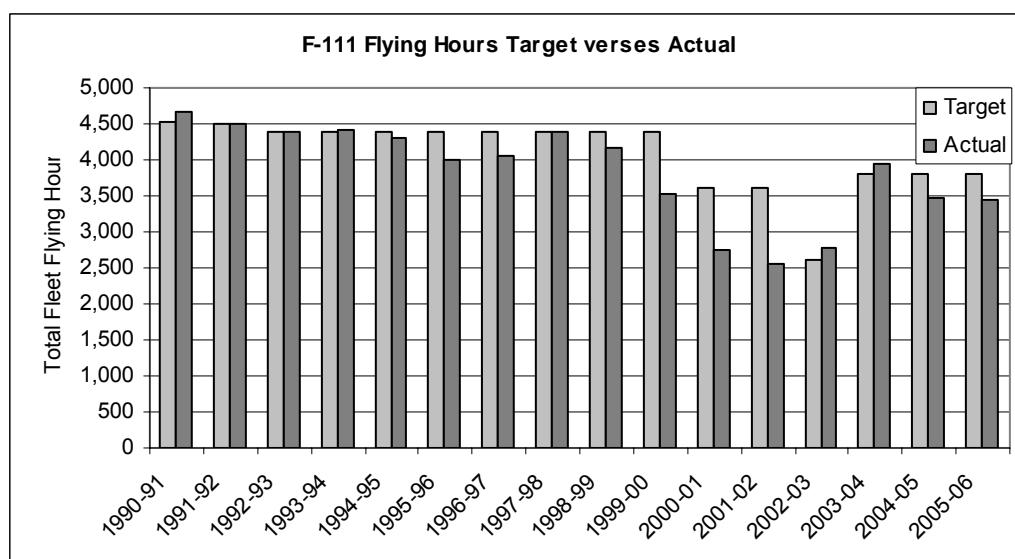
Issues:

- The F-111 fleet has been in service since the early seventies and the RAAF is now the sole operator of the aircraft. Current planning is to retire the aircraft around 2010 when they will be replaced by a fleet of twenty-four 'interim' **F/A-18 F Super Hornets**.
- Projects to provide improved electronic warfare self-protection and a long-range stand-off missile capability for the fleet are both significantly delayed. A number of planned projects have been scrapped because of the advancement of the retirement date.

Past Performance of the Strike Reconnaissance part of the Air Combat Output:

	Net Cost*	Preparedness	Core Skills	Quantity
2000-01		Partially Achieved	Partially Achieved	77% 2727 hrs
2001-02		Partially Achieved	Partially Achieved	71% 2559 hrs
2002-03	\$1,856 million**	Partially Achieved	Partially Achieved	107% 2779 hrs
2003-04	\$1,804 million	Achieved	Achieved	104% 3949 hrs
2004-05	\$2,091 million	Achieved	Achieved	91% 3,469 hrs
2005-06	\$1,790 million	Achieved	Achieved	91% 3,858 hrs
2006-07	\$1,588 million			Target 3,800 hrs
2007-08	\$1,843 million			Target 3,600 hrs

*including both Strike Reconnaissance and Tactical Fighter components. **Estimate only.



Output 4.1 Air Combat (Part 2 - Tactical Fighter)

Force Structure & Role:

71 F/A-18 Fighter Aircraft (55 F/A-18A and 16 F/A-18B): these 1980s vintage US designed and Australian assembled aircraft provide a capability for; air-defence using short and medium range air-to-air missiles, tactical air support and land strike using laser guided and unguided bombs, maritime strike using the Harpoon anti-shipping missile, and air reconnaissance.

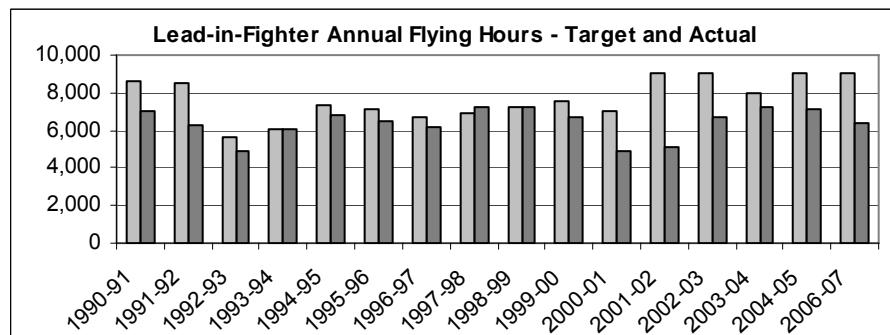
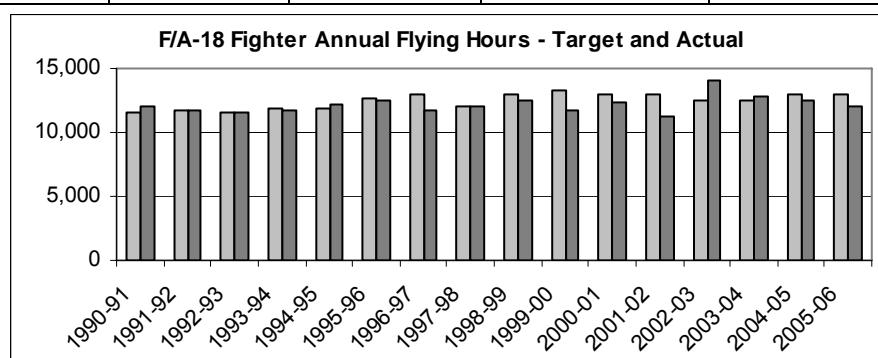
33 Hawk Lead-in-Fighters (LIF): these recently acquired UK-made jet trainers provide a training capability for both the F-111 and F/A-18 aircraft. The Hawks replace the now retired Macchi jet trainers.

4 PC-9(F) Forward Air Control aircraft: used to designate targets for the F/A-18 aircraft.

Issues: The next phase of the F/A-18 Hornet Upgrade (centre barrel replacement) was approved in 2003-04. Although LIF serviceability had been improving, the rate of effort fell below the budgeted target again in 2005-06.

Past Performance of the Tactical Fighter part of the Air Combat Output:

	Net Cost \$'000	Preparedness	Core Skills	Quantity	
				F/A-18	LIF
2000-01		Achieved	Partially Achieved	95% 12,331 hrs	70% 4917 hrs
2001-02	-	Achieved	Partially Achieved	87% 11,287 hrs	56% 5057 hrs
2002-03	\$1,856 m (estimate only)	Achieved	Substantially Achieved	113% 14,007 hrs	74% 6691 hrs
2003-04	\$1,804 m	Achieved	Achieved	103% 12,820 hours	91% 8,000 hours
2004-05	\$2,091 million	Achieved	Achieved	96% 12,467 hours	79% 7,094 hours
2005-06	\$1,790 million	Achieved	Achieved	92% 12,015 hours	71% 6,375 hours
2006-07	\$1,588 million			Target 13,000 hours	Target 8,000 hours
2007-08	\$1,843 million			Target 12,500 hours	Target 8,000 hours



Output 4.2 Combat Support of Air Operations (Air Force Capabilities)

Force Structure & Role: Details about this Output are difficult to find beyond that it comprises:

- 2 x Combat Support Wings,**
- 1 x Combat Reserve Wing,**
- 1 x Health Services Wing, and**
- 1 x Air Field Defence Wing.**

Its role is to provide 'operations support activities required to support expeditionary air bases within Australia and overseas in contingencies, and maintain operating bases day-to-day in Australia'.

Issues:

- According to the 2005-06 DAR: Overseas commitments continue to place significant pressure on training programs. The training opportunities available to Air Force personnel embedded in the Corporate Services and Infrastructure Group were limited by the restructure of the group's business practices.
- A consolidation of two combat support wings is expected 'to enhance the command and control, standardisation and efficiency of these bases and contribute to the rebalance of the Air Force capability'.

Past Performance (Annual Report):

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Partially Achieved	Partially Achieved	Partially Achieved
2001-02		Partially Achieved	Partially Achieved	Partially Achieved
2002-03	\$435 million (estimate only)	Achieved	Substantially Achieved	Partially Achieved
2003-04	\$632 million	Achieved	Achieved	Achieved
2004-05	\$678 million	Achieved	Partially Achieved	Achieved
2005-06	\$742 million	Achieved	Partially Achieved	Substantially Achieved
2006-07	\$934 million			
2007-08	\$1,023 million			

Output 4.3 Surveillance and Response Operations, Surveillance component (Air Force Capabilities)

Force Structure & Role:

10 x Air Traffic Radar: including 9 fixed radar and one mobile, for the control of ADF air traffic.

4 x Tactical Air Defence Radar: ground based radar to detect hostile and own aircraft.

JORN Over the Horizon Radar network: Operational over-the-horizon radar network including radar sites Laverton WA and Longreach Qld, and seventeen coastal beacons in the north of Australian and Christmas Island.

The network is run from the **Jindalee Operational Radar Network Correlation Centre** in Edinburgh, SA, and can detect both sea and air-borne moving objects. The Jindalee facility Alice Springs serves a research and development function. JORN is operated by No. 1 Radar Surveillance Unit.

The capability for strategic surveillance provides sensors and battle space management elements as support for wide-area aerospace surveillance, air defence, airspace control, and battle space management.

Issues:

- In 2004-05 the four tactical air defence radars were beyond their planned withdrawal date. They are being replaced by project Air 5375.
- The \$1.2 billion JORN network commenced operation in May 2003 and has achieved 100% of directed hours since then.

Past Performance of surveillance component of Surveillance and Response Operations

	Net Cost	Preparedness	Core Skills	Quantity
2000-01		Partially Achieved	Partially Achieved	Partially Achieved*
2001-02		Partially Achieved	Partially Achieved	Partially Achieved*
2002-03	\$352 million (estimate only)	Substantially Achieved	Substantially Achieved	Substantially Achieved*
2003-04	\$592 million	Achieved	Achieved	Substantially Achieved*
2004-05	\$1,098 million**	Achieved	Achieved	Substantially Achieved*
2005-06	\$1,082 million**			
2006-07	\$1,145 million**			*Qualitative Assessment by ASPI
2007-08	\$1,295 million*			

** Total net cost of Surveillance and Response Operations Output

Output 4.3 Surveillance and Response Operations, Maritime Patrol Aircraft component (Air Force Capabilities)

Force Structure & Role:

19 AP-3C Orion: 1970s vintage US-made maritime patrol aircraft. All 19 aircraft have been upgraded to AP-3C standard through an Australian-unique upgrade program. The AP-3C undertake maritime patrol equipped with the Harpoon anti-shipping missile, the Mk46 Lightweight anti-submarine torpedo, 500lb and 2000lb destructor mines, and expendable sonobuoys used to locate submarines. They undertake maritime surveillance, reconnaissance, offensive air support, surface & sub-surface strike, and search and survivor supply. The **3 TAP-3B Orion** training aircraft previously used for operational conversion training were retired in 2003-04. **6 AEW&C Aircraft** based on Boeing 737-700 IGW platforms are being acquired under project Wedgetail. This output included the Jindalee Operational Radar Network.

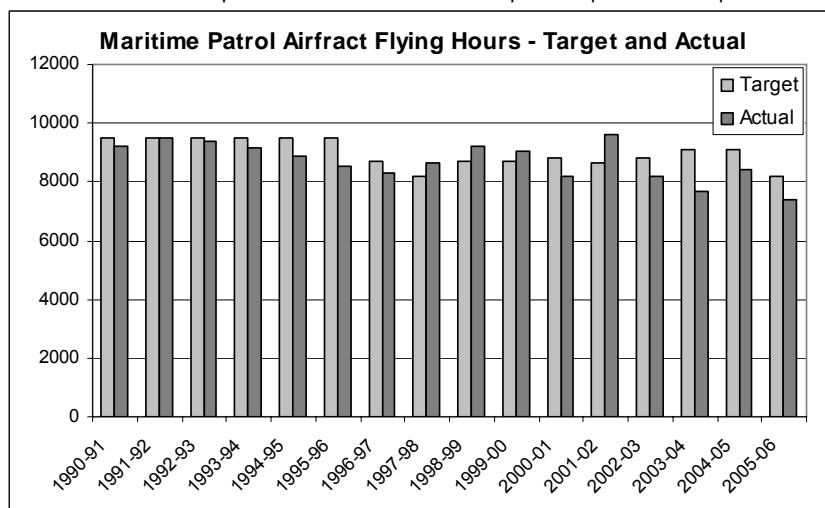
Issues:

- In 2006-07 the first (one or two) of six AEW&C aircraft were due to arrive in Australia and achieve 690 flying hours – this did not occur. The project is now delayed until 2009.
- The Jindalee Operational Radar Network operated for all of 2005-06 as planned.

Past Performance of Maritime Patrol Aircraft component of Surveillance and Response

	Net Cost	Preparedness	Core Skills	Quantity (AP-3C)
2000-01		Achieved	Substantially Achieved	93% 8216 hours
2001-02		Partially Achieved	Substantially Achieved	111% 9624 hours
2002-03	\$534 million (estimate only)	Substantially Achieved	Substantially Achieved	85% 8172 hours
2003-04	\$641 million	Substantially Achieved	Substantially Achieved	85% 7,702 hours
2004-05	\$1,098 million*	Achieved	Achieved	93% 8,431 hours
2005-06	\$1,082 million*	Achieved	Achieved	91% 7,418 hours
2006-07	\$1,145 million*			Target 8,200 hours
2007-08	\$1,295 million*			Target 8,200 hours

* Includes the previous Surveillance and Response Operations Outputs



Output 4.4 Airlift (Air Force Capabilities)

Force Structure & Role:

12 x C-130J Hercules & 12 x C-130H Hercules: Troop lift and transport aircraft also capable of being used in parachute operations and medical evacuation.

2 (rising to 4) x Boeing C-17 Globemaster III: Responsive global airlift.

14 x DHC-4 Caribou: Tactical transport aircraft able to operate from short runways.

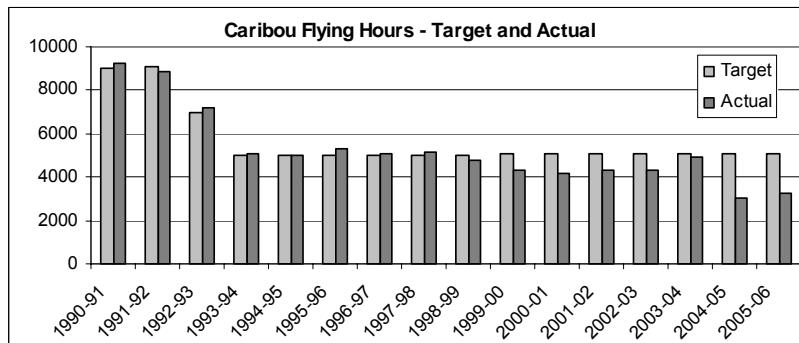
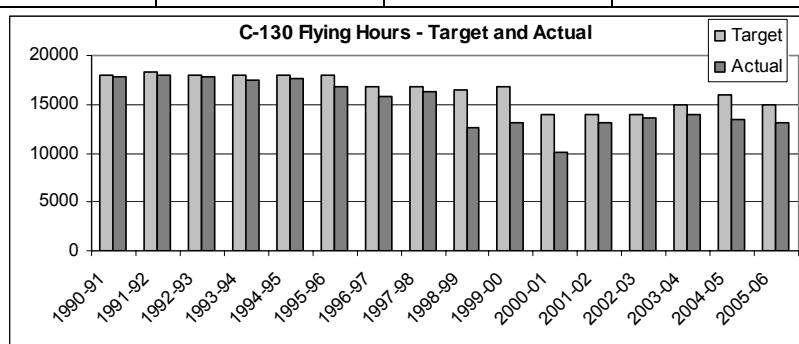
4 x Boeing 707-338C: Troop transport & air-to-air refuelling, previously also used as VIP aircraft.

2 x Boeing 737 BBJ and 3 x CL604 Challenger: VIP aircraft.

Issues: The number of C-130 flying hours in 2006-07 and 2007-08 has been reduced to allow for the rapid introduction into service of the initial (one or two) C-17 Globemaster aircraft which are planned to fly 750 hours and 3,500 hours respectively.

Past Performance:

	Net Cost	Preparedness	Core Skills	Quantity	
				C-130H/J	Caribou
2000-01		Partially Achieved	Partially Achieved	78% 10,054 hrs	82% 4,174 hrs
2001-02		Partially Achieved	Partially Achieved	94% 13,102 hrs	84% 4,289 hrs
2002-03	\$982 million (estimate only)	Substantially Achieved	Substantially Achieved	97% 13,622 hrs	85% 4,332 hrs
2003-04	\$831 million	Substantially Achieved	Substantially Achieved	93% 13,992 hrs	97.2% 4,490 hrs
2004-05	\$947 million	Substantially Achieved	Substantially Achieved	84% 13,502 hrs	59.8% 3,038 hrs
2005-06	\$986 million	Achieved	Achieved	88% 15,000 hrs	65% 4,100 hrs
2006-07	\$886 million			Target 10,000 hrs	Target 4,100 hrs
2007-08	\$1,175 million			Target 9,200 hrs	Target 4,100 hrs



Output 5.1 International Policy, Activities and Engagement

Force Structure & Role:

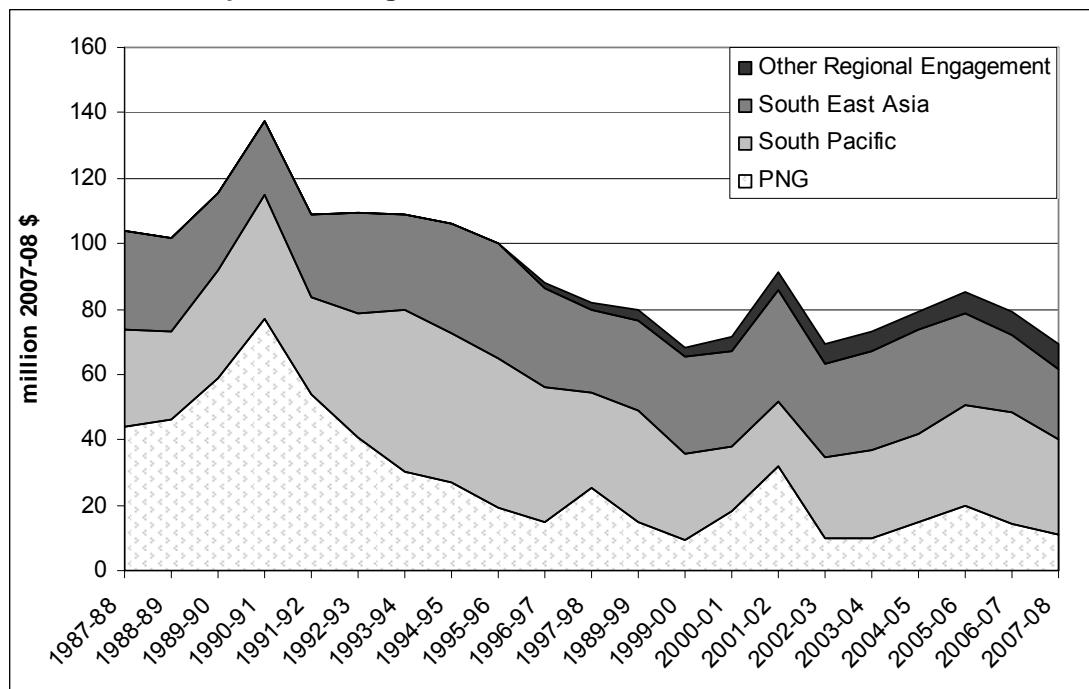
Includes International Policy Division within Russell Offices and Defence attachés in foreign countries. According to the 2005-06 PBS this Output 'provides strategic and international policy advice to the government to enable it to make sound judgements on, and develop appropriate response to, changes in Australia's strategic circumstances, and on specific issues as they arise'. It also makes recommendations to government on international engagement activities and initiatives.

Issues: In recent years, this Output has had to balance the demands of recurrent crises with the day-to-day ongoing management of defence international engagement, including the more than \$71 million a year Defence Cooperation Program that funds regional military-to-military activities and cooperation.

Past Performance: In the past two years this Output has achieved all or most of its performance targets, see recent Annual Reports for a very extensive narrative.

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Net Cost	\$156 million	\$176 million	\$210 million	\$190 million	\$174 million	\$223 million

The Defence Cooperation Program: 1987-88 to 2007-08



Output 5.2 Strategy Policy and Military Strategy

Force Structure & Role:

This Output provides input into the development of Defence White Papers and strategic reviews; policy advice on national, defence and military strategy; guidance for the development of long-term defence capability; defence aspects of non-proliferation and arms control; and advice and management of export controls for defence and dual use items.

Performance Targets:

The performance targets include providing the government and Defence with comprehensive and timely strategic policy advice on current and emerging strategic issues in the international, national and domestic environment that affect Defence.

Past Performance: In the past two years this Output has achieved all or most of its performance targets, see recent Annual Reports for a very extensive narrative.

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Net Cost	\$ 20 million (estimate)	\$30 million	\$36 million	\$46 million	\$59 million	\$80 million

Output 6: Intelligence

Force Structure & Role:

Defence Intelligence Organisation (DIO) at Russell Offices in Canberra undertakes analysis of intelligence information from the full range of available resources. They produce reports, briefs and assessments on an ongoing basis as well as in response to emerging areas of concern. Topics range across military, economic, technical, scientific and political areas.

Defence Imagery and Geospatial Organisation (DIGO) includes a HQ at Russell Offices in Canberra and the Geospatial Information Branch in Bendigo. It acquires, processes and distributes imagery and geospatial intelligence including maps and charts. DIGO also sets technical standards for imagery and geospatial products.

Defence Signals Directorate (DSD) collects and distributes foreign signals intelligence (and is prohibited by law from collecting domestic intelligence) and provides information security advice, products and services to the government and ADF. DSD has its HQ in Russell Offices in Canberra and maintains collection facilities elsewhere.

Defence intelligence collection and analysis activities support ADF operations, Defence policy making including force development, and support wider government decision making. For more information see <http://www.defence.gov.au/intelligence/>.

Security is also the responsibility of the Intelligence and Security Group, which is the organisational element that largely aligns with this Output. A branch is devoted to this task.

Issues: The recent high operation tempo has placed additional pressures on Defence intelligence resources, and the recruiting and retention of skilled personnel remains important, especially when other agencies are undergoing expansion.

Implementation of the Flood inquiry into Australian Intelligence Agencies is ongoing.

Past Performance: See the most recent Annual Report for an extensive narrative – overall assessment is ‘achieved’.

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Net Cost	\$ 342 million	\$413 million	\$459 million	\$508 million	\$516 million	\$582 million

Section 2.6: Management Reforms and Efficiencies [PBS Chapter Six: p. 201-209]

Chapter 6 of the PBS is divided into four relatively short parts dealing mainly with the implementing the recommendations of the Defence Management Review for which a band-2 led implementation team has been formed.

Accountability and Governance

This section details reviews into:

- committee reform
- governance frame work
- customer-supplier relations.

Supporting our Minister and the Government

To improve the quality, timeliness and reliability of advice and support to the Ministers, several initiatives will be undertaken including:

- appointment of a First Assistant Secretary Policy Development
- various training, workshop and education initiatives
- streamlining and strengthening of processes for Ministerial advice.

People Management

To improve the management of personnel:

- develop a strategic HR policy centre led by a new band-3 appointment
- review the split the functions between the Personnel Executive and DSG
- further develop and expand senior leadership development.t

Business System Reform

- As a result of the Defence Management Review a comprehensive review of Defence business process and systems will occur.
- The vast range of ongoing financial systems reforms will continue.
- A substantial information technology reform program will commence. This will include the appointment of a band-3 Chief Information Officer.
- The Kinnaird Reforms to Defence procurement will continue.

Other Reforms and Efficiencies

This sub-section briefly discusses reforms related to Defence Industry Policy and Estate Management.

Section 2.7: Defence Materiel Organisation PBS [PBS Section Two: p. 243-298]

On July 1 2005 DMO became a prescribed agency under the *Financial Management and Accountability Act 1997*. Since then it has had its own independent part in the Defence portfolio PBS.

Overview

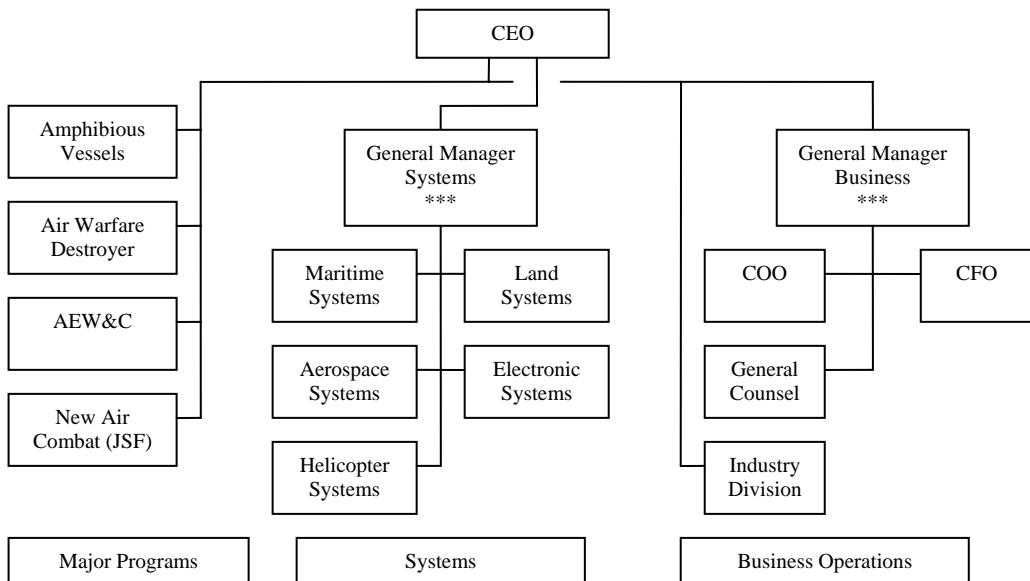
DMO acquires and supports equipment for Defence on a quasi-commercial basis. It is a totally independent entity from a financial perspective, but administratively is somewhat of an agency within an agency (hence the PBS within a PBS). The overview of the DMO PBS [pp. 241–245] starts with a description of the organisation and an outline of challenges facing it. It is first worth quoting the formal Outcome set for DMO:

'Defence capabilities are supported through efficient and effective acquisition and through-life support of materiel.'

Organisational structure

DMO is divided into thirteen divisions, each headed by a band-2 SES civilian or 2-star military officer, as shown in Figure 2.7.1. In 2007-08 two additional band-3 General Manager positions will be created to ‘assist the CEO to focus on his strategic leadership role’.

Figure 2.7.1 DMO Organisational structure



Source: 2007-08 PBS page 245

The divisions fall into three categories:

‘Systems’ divisions are set up on the traditional environmental domains of land, sea, and air, plus a division dealing with electronics and weapons. They manage and deliver the vast bulk of the 200+ major equipment acquisition projects (and a hundred or more minor acquisition projects) that DMO is responsible for, and manage the

materiel support of existing capabilities – some 1,000 major fleet groupings – across all domains.

‘*Major projects*’ divisions acquire high profile capabilities of strategic significance. That is, if a project is big, important (and politically sensitive) enough it gets its own dedicated division. At the moment there are four such programs: Air Warfare Destroyer, Amphibious Vessels, AEW&C and the New Air Combat Capability (Joint Strike Fighter and Super Hornet acquisitions).

‘*Business*’ divisions provide the full range of corporate services including those of the Chief Operating Officer, Chief Financial Officer, Defence Materiel Advocate and General Counsel (legal). In addition, there is an industry division that manages DMO’s relationship with industry.

A prescribed agency

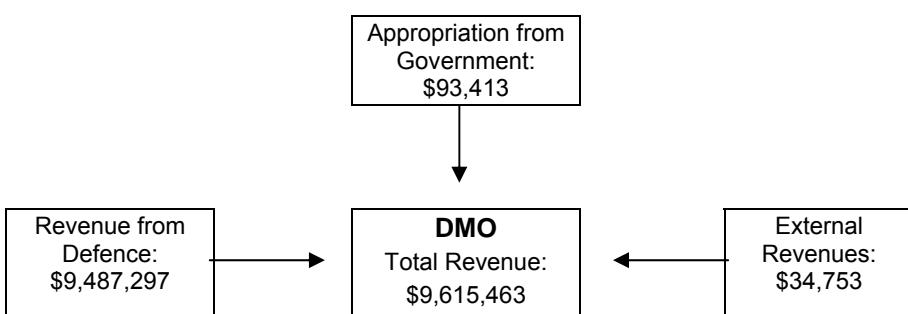
The September 2003 report from the Defence Procurement Review (known usually as the Kinnaird Review) recommended a number of changes to Defence and DMO. Key among them was to establish DMO as a separate executive agency. After consideration, the government decided to take the lesser step of making DMO a ‘prescribed agency’, which nevertheless still delivers a high degree of autonomy.

As a prescribed agency, the CEO of DMO is accountable directly to the Minister for Defence for financial matters, hence the need for separate financial statements. On other matters, DMO still remains close to Defence from an administrative perspective; the CEO being accountable to the Chief of the Defence Force through the *Defence Act 1903* and to the Secretary through the *Public Service Act 1999*.

Resources for 2007-08 [PBS p. 246]

In 2007-08 the total resourcing available to DMO will be \$9,615.4 million. This comes through three separate channels, (see Figure 2.7.2):

Figure 2.7.2 DMO Resources 2007-08 (\$ ‘000s)



Departmental Appropriation from government to pay for policy advice and management services. In 2007-08, this will be \$93.4 million including funds transferred from Defence related to the Skilling Australian Defence Industry (\$20.5 million) and Defence Industry Policy (\$26.3 million).

Revenues from Defence in payment for acquisition and sustainment services from Defence. In 2007-08 this totals \$9,487 million.

Revenues from external sources including things like the disposal of commercial vehicles and payments from foreign forces for materiel services provided. In 2007-08 this will amount to \$34.7 million.

Central to the resourcing framework for DMO are purchaser-provider arrangements with Defence for acquisition and sustainment services. In 2007-08, DMO will receive \$4,827 million through *Materiel Acquisition Agreements* with Defence, and another \$4,650 million through *Materiel Sustainment Agreements*. In addition, there are several *Shared Services Agreements* (for which no payment is made) that cover such services things as payroll, accommodation, and banking services provided by Defence, and contracting policy and advice provided by the DMO.

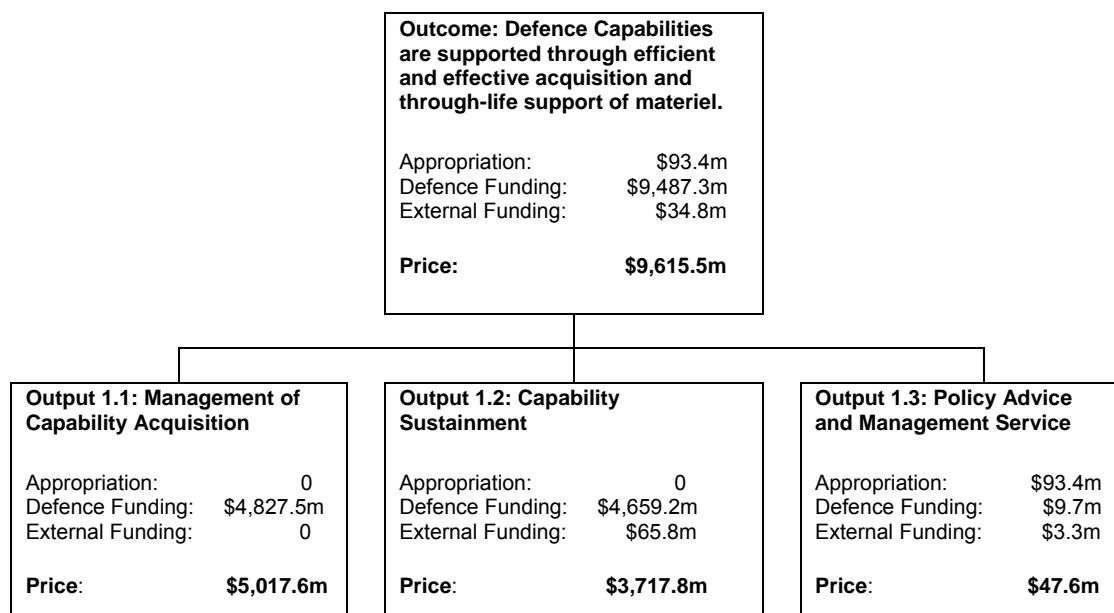
A useful breakdown of the payments to DMO appears on pages 48 to 51 of the PBS. It includes the amount of money to be spent on various categories of acquisitions and sustainment support.

DMO also expects to make use of some 1,678 military personnel whose salaries and other personnel expenses are counted in Defence's financial statements. DMO pays Defence for the services provided by these personnel, as a suppliers expense (rather like payments made to companies for contractor staff).

Planned Outcome Performance [p. 250]

As a prescribed agency DMO has its own Outcome/Outputs structure as detailed in Figure 2.7.3. As shown, the first two Outputs are predominantly funded through the Materiel Acquisition and Sustainment Agreements with Defence, while the third is mainly funded through the Departmental Appropriation. Note that DMO refers to the 'price' of outputs rather than 'net cost' as in Defence.

Figure 2.7.3 DMO Output prices 2007-08



Performance Information for Outputs [p. 253]

The PBS sets performance targets for the three DMO outputs and outlines how they will be evaluated in Table 3.2 [PBS p. 253]. We have reproduced this in Table 2.7.1 below.

Table 2.7.1 DMO performance targets and planned evaluation

Output	Performance Target	Planned evaluation of performance
Output 1.1 Management of Capability Acquisition	Project scope, schedule and budget criteria, as agreed between the CEO DMO and the Defence 'customer', and expressed in the Materiel Acquisition Agreements.	Delivery of major and minor capital equipment projects against the Materiel Acquisition Agreement scope, schedule and budget criteria.
Output 1.2 Capability Sustainment	Performance targets agreed between the DMO and Capability Managers will be consistent with enabling the ADF to deliver its operations and capability preparedness requirements as directed by the Government.	Deliver quality, timely and cost effective maintenance, repair, and supply services to the levels and standards agreed by Defence including support to ongoing operations.
Output 1.3 Policy Advice and Management Services	Deliver quality policy advice and management services	Delivery of quality advice and services to drive reform

Management of Capability Acquisition – Output 1.1

Each of the 200 odd major acquisition projects undertaken by DMO has a Materiel Acquisition Agreement with Defence that specifies scope, schedule and budget. The PBS summarises the top-30 acquisition projects by expenditure in 2007-08 (see top-30 projects below). Agreements also exist to cover the minor acquisition projects DMO manages. For the first time, the variation to project approvals for the top-30 projects has been provided [PBS Table 3.4, p. 258]. This increased transparency is to be commended.

Capability Sustainment – Output 1.2

On pages 288 to 300, the PBS details the goals and challenges for 2007-08 in the area of capability sustainment. Such detail, which was first provided in the 2005-06 PBS, gives a useful insight into the range of activities undertaken. In general, capability sustainment include repair and maintenance, engineering, supply, configuration management and disposal, as well as the provision of spares, technical data, support and test equipment, training equipment and explosive ordnance. Importantly, it also includes the long-troubled Standard Distribution and Supply System (SDSS) under the responsibility of the Chief Operating Officer. For the first time, the top-20 sustainment products by weapons system has been given [PBS Table 3.7 p. 289], we discuss this new information below.

Policy Advice and Management Service – Output 1.3

This includes contracting and procurement policy advice for Defence and the DMO, industry policy and advice to Defence and the government, and corporate reporting requirements. Key performance targets for this output are given on page 301 of the PBS and related primarily to advice to government and effective corporate governance and reporting.

The ‘Top Twenty’ sustainment products

The top 20 sustainment activities for DMO by forecast expenditure from Table 3.7 in the PBS are listed in Table 2.7.2 below along with some interesting derived figures based on planned rates of effort.

Table 2.7.2: Top 20 sustainment products

	Cost (m)	Fleet	Hours	Per platform	Per hour
Aerospace					
F-111 Weapons System	\$146	21	3,600	\$6,952,380	\$40,556
AP-3C Orion Weapons System	\$121	19	8,200	\$6,368,421	\$14,756
F/A-18 Hornet Weapons System	\$119	71	12,500	\$1,676,056	\$9,520
F/A-18 Super Hornet - 2010-11*	\$159	24		\$6,625,000	
Hawk LIF 127	\$95	33	8000	\$2,878,787	\$11,875
C-130J Weapons System	\$65	12	4600	\$5,416,666	\$14,130
C-17 in the year 2007-08	\$55		3500		\$15,714
C-17 in the year 2010-11*	\$107			\$26,750,000	
Helicopters					
Seahawk Weapons System	\$79	16	2800	\$4,937,500	\$28,214
Black Hawk Weapons System	\$67	34	7500	\$1,970,588	\$8,933
Super Seasprite	\$55	11	200	\$5,000,000	\$275,000
		Fleet	Days	Per platform	Per day
Maritime					
Fuel and lubricants	\$430				
Collins-class submarines	\$322	6	1004	\$53,666,667	\$320,717
Anzac frigate	\$238	8	2344	\$29,750,000	\$101,536
FFG Frigate	\$126	5	1028	\$25,200,000	\$122,568
Mine Hunter Coastal	\$61	6	2085	\$10,166,667	\$29,257
Land Systems					
ADF Clothing and Equipment	\$101	50.5k		\$2,000	
ADO Commercial Fleet	\$81				
B Vehicles	\$85				
Explosive ordnance	\$266				
Wide Area Surveillance	\$74				
Battlespace Communications	\$63				

*From PBS page 49 for Super Hornet and C-17 costs in 2010-11

The above figures need to be treated with caution. Various fleets enjoy different amounts of contracted support (the cost of which is included) and manpower support from Defence’s own workforce (which is not included). More generally, there are usually other costs (like fuel) that are not included separately for each platform. Also, one-off costs can heavily influence the results. With these cautions, several unexpected and surprising results arise:

- The new Lead-in-Fighter *training aircraft* cost 72% more to maintain than the old F/A-18 *combat aircraft* that they prepare pilots for.
- It will cost four-times more to maintain the new Super Hornet than the garden variety Hornets we now own.
- The new C-17 aircraft will cost an impressive \$26.7 million each to maintain.
- Naval helicopters cost 2-3 times as much to operate as similar Army platforms, and almost as much as the venerable and costly F-111.
- The new Anzac frigates cost more to operate than the old FFG frigates.
- We are paying the princely sum of \$55 million to fly the Seasprites for 200 hours, or more \$4,500 per minute (who wrote that contract?)

The ‘Top Thirty’ projects

The PBS lists the top 30 major capital equipment projects by 2007–08 expenditure [PBS Table 3.3 page 255] and provides a description of each. We reproduce the top-30 projects in Table 2.7.3 overleaf. This year, ASPI has again commissioned a team of defence specialist journalists to prepare reports on what we thought the top 20 projects for 2007–08 would be (see Section 8 of this brief). The PBS also includes a listing of previously approved top-30 projects that is useful (Tables 3.5 & 3.6 on p. 283–287). We explore the recent performance and capacity of DMO to deliver the planned Major Capital Investment program in Section 7 of this brief.

Governance and Materiel Reform

The PBS provides a good explanation of the progress made in establishing DMO as a prescribed agency, including the extensive change management program that is presently underway (see page 302 of the PBS). The Material Reform’ program has six goals:

- Professionalise the DMO workforce
- Re-prioritise activity into areas of high importance
- Standardise corporate systems and work practices
- Benchmark against the best organisations of similar scale and scope
- Improve industry relations
- Lead reform in Defence

The key points of the government’s new Defence Industry policy are outlined on page 305 of the PBS.

People

The DMO workforce is a mixture of military personnel, civilians and contractors as detailed on p. 310 of the PBS. The key information is collected in Table 2.7.4 overleaf.

The civilian and military personnel in DMO are held under slightly different arrangements. Civilians in DMO are Defence employees and the CEO of DMO has delegations from the Secretary of the Department that he exercises in this regard. The expenses associated with DMO’s civilian workforce appear in their financial statements as employee expenses.

In contrast, the military personnel in DMO are provided through a purchaser provider arrangement with Defence. This does not cover the full per-capita cost of the military personnel, but rather represents a payment for their services roughly corresponding to their costs exclusive of allowances and overheads specific to their military role (and this is broadly commensurate with what would be needed to secure similar skills in the labour market). Thus, if the military fail to deliver sufficient personnel (due, for example, to operational demands or shortages) DMO has the money to hire people from outside.

Table 2.7.3: Top 30 Defence Major Capital Equipment Projects (million \$)

Project	Project Number	Approved Project Expenditure	Spend to 30 June 2007	2007-08 Budget Estimate
Aerospace				
Heavy Airlift ⁽¹⁾	AIR 8000 Ph3	1,916	1,050	241
ADF Air Refuelling Capability	AIR 5402	1,803	531	198
F/A-18 Hornet Upgrade	AIR 5376 Ph2	1,508	1,087	110
F/A-18 Hornet Upgrade - Structural Refurb	AIR 5376 Ph3.2	876	80	106
Airborne Surveillance for Land Operations	JP129 Ph2	135	14	34
Airborne Early Warning and Control	AIR 5077 Ph3	3,533	2,522	160
Air Warfare Destroyer				
Air Warfare Destroyer Design Activity	SEA 4000 Ph2	479	212	117
Aegis Combat System	SEA 4000 Ph3.1	1,299	170	112
Chief Operating Officer				
Logistics Information Systems	JP 2077 Ph 2B	124	50	38
Electronic and Weapons Systems				
Electronic Warfare Self Protection for ADF a/c	AIR 5416 Ph 2	303	134	69
Mulwala Redevelopment	JP 2086 Ph 1	347	18	58
Explosive Ordnance Reserve Stocks	JP 2085 Ph1B	209	123	54
Follow on Stand Off Weapon	AIR 5418 Ph 1	388	64	50
Lightweight Torpedo Replacement	JP 2070 Ph 3	287	56	49
HF Mod	JP 2043 Ph 3A	628	358	42
New Air Defence Command and Control	AIR 5333	259	105	32
MILSATCOM –Ground Infrastructure	JP 2008 Ph 3E	209	150	32
Helicopter				
Additional Trooplift Helicopter	AIR 9000 Ph2	3,564	559	432
Armed Reconnaissance Helicopter	AIR 87 Ph2	2,012	1,266	182
Land				
Upgrade of M113 Armoured Vehicles	LAND 106	617	206	116
Bushranger Infantry Mobility Vehicles	LAND 116 Ph3	361	269	46
Tank Replacement Project	LAND 907 Ph1	558	460	43
Maritime				
FFG Upgrade Implementation	SEA 1390 Ph2	1,497	1,082	96
SM-1 Missile Replacement	SEA 1390 Ph4B	600	109	78
Anti-Ship Missile Defence	SEA 1448 Ph2B	424	34	81
Anzac Ship Project	SEA 1348 Ph2	5,376	5,296	55
Collins Replacement Combat System	SEA 1439 Ph4A	452	345	48
Anti-Ship Missile Defence	SEA 1448 Ph2A	353	118	40
Armidale-class Patrol Boat	SEA 1444 Ph1	556	463	35
Ship Self Defence RAPID acquisition	SEA 1779 Ph 1	51	12	33
Jindalee Operational Radar Network	JP 2025 Ph 3/4	1,245	1,180	45
Lightweight Torpedo Replacement	JP 2070 Ph 2	321	143	45
TOTAL TOP 30 APPROVED PROJECTS		30,269	16,945	2,847
Other Approved Project Estimate		29,269	25,335	859
Management Margin				-543
Total Estimated Approved Spend				3,163
Super Hornets and Land Force Enhancement				695
Projects Planned for Government Approval				437
Total Funds Available				4,295

Table 2.7.4: Workforce summary for DMO (average funded strength)

	2004–05 Actual	2005–06 Budget	2005–06 Actual	2006–07 Budget	2006–07 Projected	2007–08 Budget
Navy	306	353	277	352	281	345
Army	461	501	411	484	409	482
Air Force	770	830	762	841	773	851
subtotal	1,537	1,684	1,450	1,677	1,463	1,678
military shortfall						-165
Civilian back-fill						+165
Civilian	4,363	4,448	4,502	4,620	4,961	5,277
Reserve	125	169	191	158	217	235
PSP	388	338	393	374	298	301
Total	6,413	6,639	6,536	6,829	6,939	7,326

Source: DAR, 2006-07 PBS and 2007-08 PBS.

Due to shortages of military personnel, DMO will add additional civilian personnel to ‘back-fill’ vacant military posts. While the number of personnel in DMO has increased substantially over the past three years, this largely accords with the increased volume of acquisition and sustainment work that is being undertaken. In a little over twelve months, the government has decided to buy two major weapons systems – the F/A-18F Super Hornet and the C-17 Globemaster transport aircraft. These two platforms alone have added significant additional work to DMO, and will continue to do so as they enter service with the ADF.

The PBS includes a discussion of the training and development initiatives underway to up-skill and professionalise the DMO workforce on pages 307–309.

Budgeted Financial Statements

The budgeted financial statements for DMO appear on pages 313 to 319 of the PBS.

SECTION 3 – DEFENCE MANAGEMENT

Defence management arrangements are set to change significantly following the *Defence Management Review* that concluded in April this year. This Section begins by exploring the Review's findings and recommendations and then examines Defence's overall efficiency, financial management and transparency.

The Defence Management Review

The report of the *Defence Management Review* (DMR) was quietly released late in the afternoon on the Thursday before Easter, and not without reason. (The report and Defence's response are available for download at www.defence.gov.au/dmr/)

After acknowledging that in recent years 'much has been achieved in meeting the challenges which have confronted Defence', the DMR report goes on to describe an organisation in which 'accountabilities are confused, absent or accorded a low priority' and where generous funding has created an 'apparent indifference to efficiency'. Equally worrying, the report identifies 'tension in the ministerial-departmental relationship' and a senior leadership focused 'overwhelmingly towards military operations' rather than strategic matters.

While the diagnosis is serious, the prescription offered is cautious and measured. It's certainly not the radical surgery suggested by the ASPI Special Report *Improving Defence Management* released earlier this year (available for download at www.aspi.org.au) Nonetheless, in most areas, the report's recommendations move Defence in worthy directions.

How far the reforms go, and how effective they are, will depend on whether the Secretary and CDF seize the opportunity, and the extent to which the government pushes them to do so. But, even with the best of efforts, there are limits to what can be expected on the basis of the Review's recommendations. Several key areas of Defence management are left unaddressed, and the Review fudges the critical question of what business model to adopt. In that sense, it sets out a reform program without a clear vision of where it is headed – that's left for Defence to decide.

Background to the review

The Minister for Defence commissioned the Review on 18 August 2006, appointing a four person team led by Ms Elizabeth Proust. The terms of reference called for an examination of organisational efficiency and effectiveness in Defence (exclusive of the DMO and the ADF operational chain of command) and asked for 'recommendations with particular regard to' an eclectic but limited series of matters:

- decision making and business process
- military personnel in non-operational roles
- management and provision of information to stakeholders
- information management systems.

By and large, the Review focused on and around these specific issues and avoided the broader questions of effectiveness and efficiency. This probably fulfilled the

Minister's intent and aligned with the time and resources available to the Review team.

Some care is necessary when reading the Review's recommendations, many of which read like motherhood statements. For example, the recommendation to 'maintain a focus on the real long-term cost of Defence' seems both anodyne and obvious. Yet, taken in the context of the main body of the report, it's actually making an important point that has previously evaded the organisation's grasp.

However, in several key areas (like the choice of business model) the report appears to be marshalling the argument for a bold recommendation, only to stop short at the last step. For this reason, it's important to study the report and Defence's response, rather than just read the list of recommendations.

What the Review said

In total, the review made 53 recommendations that can be grouped under the headings; ministerial relations, accountability, organisational design and governance, personnel management, financial reform, information management and implementation. We now examine each in turn.

Ministerial relations: The third specific issue in the terms of reference concerned the 'structure, processes and procedures for managing information and providing timely and accurate information to stakeholders'. This is bureaucrat talk for 'why does the department keep landing the Minister in the crap?'

There is some history here. The last three Ministers have each been severely embarrassed by untimely or inaccurate advice from Defence. Peter Reith had the scandal of children overboard, Robert Hill had the who-knew-what-when about Abu Ghraib fiasco and Brendan Nelson had the Kovco debacle. In fact, it was in the midst of the Kovco saga that the Review was conceived. More generally, the Review confirms what has long been known in Canberra; there have been tensions between the Minister's office and Defence.

The Review attributes the problem to a lack of common understanding between the parties, limited lines of communication between Defence and the Minister's Office, and Defence's complexity, hierarchical structure and fixation on process over responsiveness. The remedy offered is more extensive induction for new Ministers, advisers and senior staff, a review of Defence's processes for providing advice, training for Defence personnel on providing Ministerial support, and 360-degree appraisal for senior staff including input from external stakeholders.

The Review's assessment and recommendations are sensible as far as they go. But no amount of workshops, training, revamped processes or new-fangled report cards is going to solve the problem. As a matter of priority, the current Minister and his staff need to sit down with the Secretary and CDF and thrash out a workable *modus operandi* based on mutual trust and realistic expectations.

Another thing that the Review avoided was a critical look at what's being pushed (or pulled) up to the ministerial level. Ten years ago, Defence generated around a thousand ministerial submissions a year. Today, due to a number of factors including

higher operational tempo, the figure is around six thousand. This is nothing short of ridiculous. Assuming that the Minister takes only ten minutes to read, consider and discuss each submission with his staff, it would still take 125 days a year to work his way through the dispatch box. It is left as an exercise for the reader to estimate the number of years spent by Defence staff drafting, re-drafting and clearing the same submissions.

Reducing this torrent of paper would require effective delegation and trust, backed up by accountability. While this might be uncomfortable for some, including the Minister, it's better than having the wheels of government gummed up with wood pulp. We shall return to discuss this issue again below in the context of delegation within Defence and between the government and Defence.

Accountability: The DMR report accurately assesses Defence's internal business model, which divorces the control of resources from the Service Chiefs, who are nominally accountable for delivering military capability. As the report observes:

The output executives currently have little knowledge of how that money is spent, what the total cost of delivering a capability is, or whether the current way of doing business represents value for money. They are, realistically, not able to take personal responsibility for the outcomes of decisions taken in directing their business or to deal with the consequences of faulty decision making or mismanagement.

The Review offers ten recommendations on this matter, all of which could improve the alignment of accountability and control – at least in principle. These include:

- secretary and CDF to set a joint vision and strategic direction for Defence
- clarify governance, including revised senior executive Charters
- commit to a high-level business model that defines roles and responsibilities
- give Defence Support Group a mandate on a par with DMO
- service delivery agreements to include performance metrics
- all parties to commit to participate in business partnering forums
- continue to improve cost visibility, including through improved IT systems
- undertake comprehensive business process mapping across Defence
- use a partnering approach when contracting for outsourced services
- maintain and deepen product standardisation across Defence.

So far, so good. All of these recommendations make eminent sense. What's missing is the detail; in particular, the answers to the following related questions:

- What should the new high-level business model be?
- How will efficiency and effectiveness be ensured?

The most surprising thing about the DMR report is that it does not proffer an opinion on Defence's high-level business model beyond the generic aspiration that it 'clearly defines the roles and responsibilities, and distinguishes policy and core business from service delivery'. Surely a clear and prescriptive recommendation on Defence's high-level business model was *the* fundamental deliverable expected from the review? That is not to suggest that the answer is obvious; not only is designing a business model for

Defence technically difficult (as we explore below), but it potentially arouses deep sensitivities over military and civilian roles. Any proposal for a business model that goes beyond a bromide risks criticism.

The DMR report identifies two possible types of internal business model; a purchaser-provider model in which ‘purchasers’ buy goods and services from ‘providers’, and an attributed budget model, where the ‘providers’ maintain an attributed budget on behalf of ‘purchasers’. In Defence, the providers are DMO, DSG DSTO and CIOG, while the purchasers are ostensibly the three services, the intelligence and strategy groups and Joint Operations Command (the so-called output executives).

Actually, it’s not even clear that the six output executives are the right level to be focusing on. Looking at the organisational chart, it is natural to identify these six as the consumers of internally produced services. However, that only makes sense if they are the people best placed to make business decisions – and respond to incentives – to efficiently deliver capability. This may not be the case.

The intelligence group, for example, has three distinct parts that could each be operated as a separate business units. Similarly, both Air Force and Navy are divided into Force Element Groups plus a central function that delivers individual training and coordinates collective training. The same is somewhat less true in Army, which tends to be more integrated. In any case, a great deal of thought needs to go into deciding the level at which the fundamental business units of Defence are established. Military heritage should not be taken as an infallible guide in this regard.

Defence have initiated a staged review of business processes and systems, which will include the development of a new business model. Inevitably, they will have to decide the fundamental level at which accountability is assigned and how resources will be controlled.

Irrespective of the level chosen, the next step in designing a business model for Defence is to decide how to measure and encourage the efficient delivery of outputs. This is entirely separate from the measurement of performance in the delivery of internal services. While the proper accounting of the costs within Defence is a necessary condition for efficiency, it is not sufficient. Equally necessary is the quantification of Defence’s non-financial external outputs – principally military capability – and the use of incentives to drive cost-effectiveness. The DMR report is silent on how any of this should occur, and Defence’s response gives no indication that this will be addressed.

These are critical issues for the business model. Assume for a moment that the Service Chiefs are given control of the resources that enable the capabilities for which they are nominally accountable. In the absence of metrics for the military capability delivered, we would have no way of knowing if efficiency is declining or improving – nor would we have any basis to provide incentives for improved performance.

Organisational design and governance: The Review depicts Defence as an organisation struggling to juggle the demands of ongoing administration with those of a high operational tempo. That juggling act has seen longer-term strategic issues fall

to the ground because the senior leadership is preoccupied with operational matters. In response, five recommendations are made regarding higher organisational design, the diarchy and committees. Before looking at what the Review had to say on these matters, it's worth emphasising what they appeared to miss: the preoccupation with operational matters (both military and administrative) is a serious problem in and of itself.

The problem has its roots in the advent of previously unthinkable levels of communication and a government thrice wounded by communication break-downs. The result is an insatiable appetite for information and engagement at the top of the department and in the Minister's office, especially concerning military operations. One result is the mind-boggling 6,000 ministerial submissions a year mentioned above. We've gone from the 'fog of war' to a 'quagmire of data'.

There is no solution to this other than effective delegation – especially when it comes to operational matters. The Minister must delegate to the CDF and Secretary. The CDF and Secretary need to delegate to their Joint Operational Commander (he is a three star after all). The Joint Operational Commander needs to delegate to the commanders on the ground. One wonders what sort of pressures the failure to do so places on deployed forces. None of this will be easy to accomplish, but it has to be done; we need strategic corporals, not tactical generals. More generally, the Minister needs to trust the CDF and Secretary to get on with the job of running the department.

Given recent history this will not be easy. Defence has become a hardship posting for successive ministers. The solution, however, is not to try and make the Minister omniscient (nor the Secretary and CDF) about every going on across an organisation of more than 90,000 personnel. Rather, when things go wrong, time needs to be given to clarify the facts – and Defence personnel need to learn how to recognise what's important outside of the secretive and insular world they inhabit.

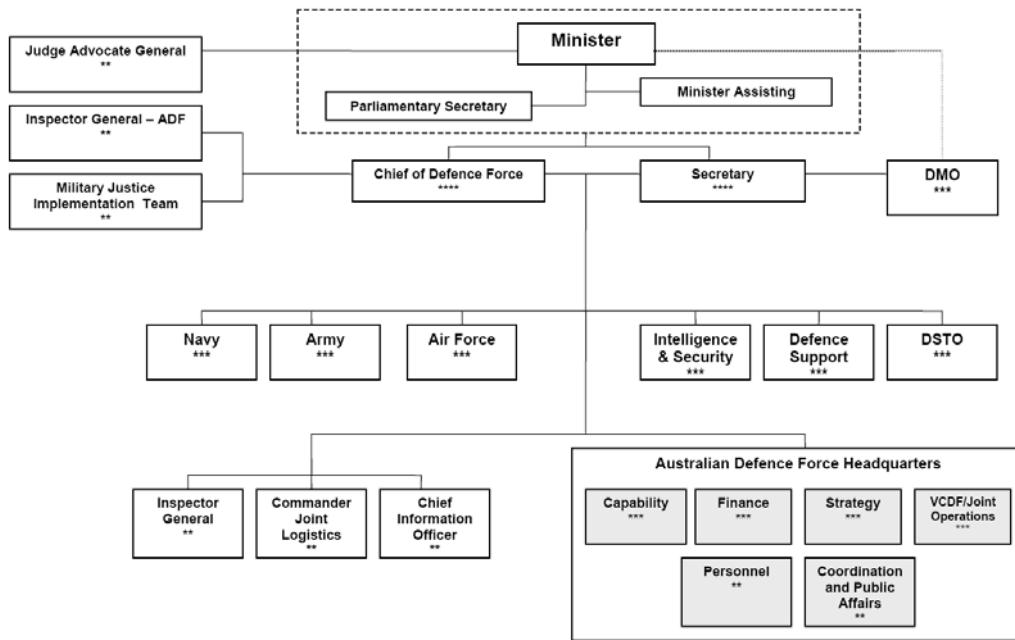
Higher Defence arrangements: The Review discusses the diarchy at length and proposes a separation of responsibilities between the Secretary and CDF. Since this has been rejected by the Minister on the advice of the Secretary and CDF, we need not worry about it, except to observe that the proposal hinged on a contentious interpretation of respective roles set out in the Defence Act. The Minister made the right decision.

One relatively bold recommendation is to disband the Australian Defence Headquarters (ADHQ) and create an expanded Office of Secretary and CDF. Defence have decided to create a deputy-secretary level position to run the expanded office. The resulting organisation structure is set out in Figure 3.1, along with that prior to the changes.

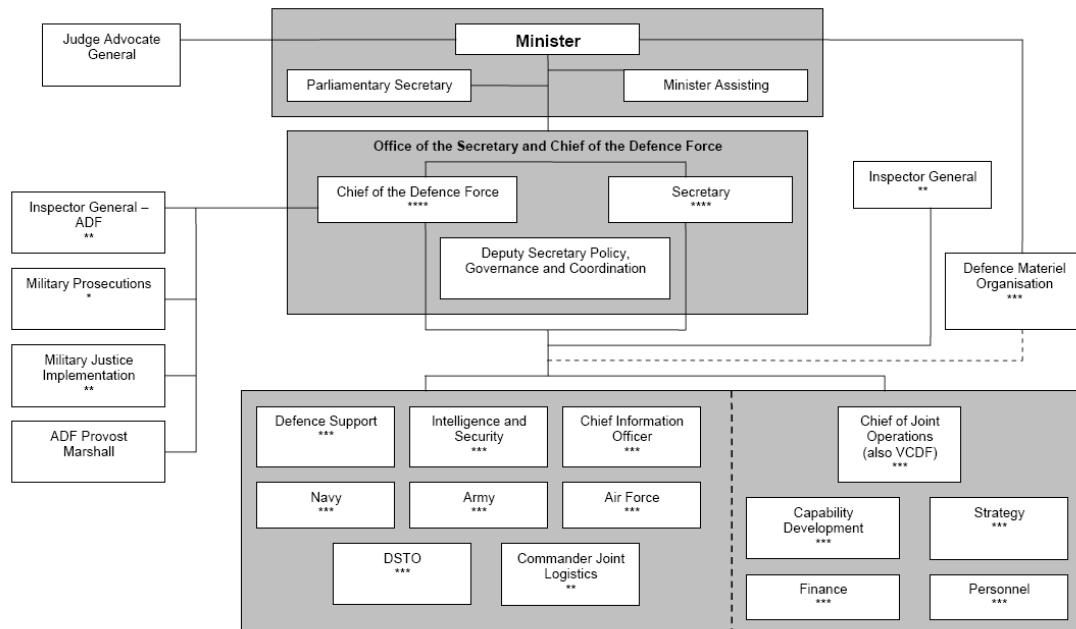
The demise of the ADHQ is no loss; it was fatally compromised by the failure to appoint someone to run it. However, while the creation of an Office of Secretary and CDF is an improvement, it is no quantum leap forward.

Figure 3.1: Current and planned Defence organisational structure

Old structure:



New structure:



According to Defence's response to the DMR, by drawing together public affairs, ministerial coordination and two new entities — policy development and an organisational development unit — the new Office will 'support the Secretary and CDF so that they can better respond to the demands of high operational tempo while also delivering high quality policy advice, driving organisational reform and exercising strategic leadership'. This is fine as far as it goes. In fact it's a solid move forward, but it falls short of appointing a chief operating officer to actually run the sprawling bureaucracy on Russell Hill.

As for rationalising Defence's labyrinthine committee arrangements, the Review recommended replacing both the Defence Committee (DC) and Chief of Service Committee (COSC) with a Defence Strategic Management Advisory Council of reduced membership. This is a sound recommendation to which Defence has agreed in part (the membership will remain broad). Below the higher committees, the Review recommended that a further review be undertaken. We'll have to see how it turns out, but it may have been better for the Review to have taken a red pen to the problem. Then again, Defence is probably as adept at re-establishing committees as it is in not doing away with them in the first place.

In a positive sign, Defence have said that the review of all committees will have a 'focus on strengthening individual accountability for decision-making'. This is a good start.

Personnel management: The DMR examined and made recommendations on a wide range of personnel issues. Perhaps the two most important recommendations are:

- the creation of a strategic human resources (HR) function by recasting the present Personnel Executive as a 'strategic, central policy unit led by an HR expert at the SES Band 3 level'
- the clear assignment of responsibility for the leadership, management and development of military personnel to their Service Chiefs, and for civilians to their group heads.

Given the centrality of personnel to military capability, this is a sound development, even if there is some undoubted tension between these two key recommendations. The Review also recommends refining the split between personnel policy (in the Personnel Executive) and service delivery (by the Defence Support Group). This makes sense, especially given the recasting of the Personnel Executive role.

In an uncharacteristic foray into discussing efficiency, the DMR report observes that staff numbers in the HR function appear high at around 2,800. And well they might. At the time of the Defence Reform Program in 1996 the figure stood at 2,840 of which 843 were reported as having been harvested as savings three years later. The report is being far too cautious with its conclusion: 'We are not necessarily saying that numbers should be reduced, but it may well be that existing staff can be deployed on emerging issues where they can add greater value.'

The discussion of HR management ends with a series of sensible recommendations to address executive staffing challenges. These include:

- seeking internal and external candidates for senior executive jobs
- more actively managing civilian executive careers
- reducing executive churn and improving executive development.

Curiously, the DMR is silent of the management of personnel below the executive level, and it makes no mention of using incentives and sanctions to drive individual performance beyond that currently employed on a limited basis.

Financial reform: The DMR report devotes a chapter to financial reforms. It says all the things you would expect about developing and maintaining financial skills, engaging the senior leadership in financial reform and risk management, and engaging the ANAO to help fix problems. It also recognises the strategic importance of financial management (not to be confused with keeping the auditors content) through the recommendation to: ‘Maintain a focus on the real long-term cost of Defence’. As elsewhere, it is sensible as far as it goes.

What the report does not say is that so long as Defence has a *carte blanche* to come back and ask for more money, it is unlikely to be concerned about efficiency or affordability.

Information Management: Improvements to Defence’s IT systems are integral to delivering the improvements sought through revamped business processes. While acknowledging recent good progress, the DMR report perceives that a lot remains to be done to bring Defence IT systems up to where they need to be. With no less than thirteen recommendations (the most for any area) the Review seeks to set things right in a number of ways. Key recommendations include:

- develop a comprehensive IT strategy
- implement Defence-wide management information systems
- appoint a deputy-secretary level Chief Information Officer (CIO)
- develop a customer focus
- benchmark the cost-effective delivery of IT services
- consolidate technical control
- standardise basic administrative IT services and deliver cost transparency
- CIO group should be closely engaged in any business process re-engineering
- CIO group be responsible for all IT service delivery, including regional IT
- reporting should occur through an integrated Defence-wide system
- clarify IT procurement strategies
- defer any further outsourcing until business processes and cost are understood
- transition to a single Enterprise Resource Planning (ERP) system in the next ten years.

To this author’s non-expert view of IT management, these all seem to be sensible steps forward, although the proposal for a single Enterprise Resource Planning (ERP) system could be dangerous in the absence of tight discipline to prevent a complex overly-bespoke project emerging. Moreover, whether the notion a ‘single’ ERP precludes a federated system is unclear. Given the scale, complexity and importance of this initiative, it needs to be handled with great care. The best approach would be to develop it like any other major defence investment project through the two-pass

Kinnaird process. The development of Defence's ERP deserves as much attention as any equipment acquisition gets.

Implementation: To deliver the reforms outlined, the DMR report proposes that a small implementation unit be established in the Office of Secretary and CDF, to which Defence has agreed. The following time-table is a summary of that set out in the report, which is designed to initiate and maintain the momentum of change.

- **The first month:** Announce reform, allocate responsibilities, establish implementation unit, advertise for a new Head of Strategic HR and CIO, and announce those initiatives that require little if any further analysis.
- **Short Term (the first six months):** Announce a new joint vision and strategic direction for Defence; establish new organisational structures; put in place new governance structures with the high level business model and the revised committee system and commence IT benchmarking.
- **Medium Term (the first year):** Complete activities which require more preparation such as revised career management for senior executives, review of the HR function, and revised training arrangements. Put in place new systems for the 2008–09 Budget including more business-like arrangements between internal customers and providers.
- **Long Term (more than twelve months):** Develop costing tools and detailed business process mapping and develop Defence-wide management information systems and progress towards a single ERP.

Will it be enough?

In some areas the DMR offers real potential for improvement, in others it is silent or incomplete; it depends where you look. In summary:

- Improved relations between the Minister's office and the department will depend more on what individuals do than on any of the mechanical initiatives suggested.
- Until the Defence business model is detailed, we cannot be sure that things are moving forward in the area of accountability.
- The recommendations to improve the higher-level governance of Defence are positive, but real improvement will depend critically on effective delegation.
- Defence appears to be creating an ever larger bureaucracy within a bureaucracy to handle the upward flow of information. This is symptom, not a solution.
- Reform of the personnel function is broadly sound, although bolder steps on individual incentives and sanctions are needed.
- Financial reform is largely a continuation of the present. As such, it will result in ongoing improvements to accounting compliance but make no difference to Defence's strategic, financial and capability planning processes.
- The way is clear to make good progress on fixing Defence's long-ailing IT systems. Of course, this is contingent upon the finalisation of the business model.
- Even if the reforms provide improved accountability and greater cost visibility, they beg the question of how performance will be measured and how incentives and oversight will deliver improved efficiency.

Efficiency

There were no new efficiency or savings measures in this year's budget although, as we pointed out in Section 2, it appears that of the order of several hundred million in additional logistics costs has been absorbed over four years.

The PBS reports the progress on prior efficiency initiatives in Table 3.1 which shows the cumulative impact since 2001-02. The initiatives take two forms. The first two items, the White Paper savings and administrative savings measures, are redirected back into Defence to offset costs in other areas. The last four items have effectively been sliced off Defence's bottom line.

Table 3.1: Efficiency measures and savings Targets of Defence

\$m	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	after
White Paper Savings Initiatives	50	200	200	200	200	200	200	200	200	200	200
Administrative Savings Targets ²			50 (61)	100 (126)	150 (169)	153 (175)	200 (202)	200	200	200	200
Extra Administrative Savings						70	60	12			
Progressive Efficiency Dividend ¹					3	16	36	59	85	109	+ \$30 p.a.
Absorbed Budget Measures 2005/06					65	78	46	28	?		?
Rationalisation of Command/Control						6	13	21	31	31	31
Total	50	200	250	300	418	545	555	520	516	540	570+

¹ After 2009-10 the efficiency dividend will continue to grow by roughly \$30 million per annum.

² Achieved administrative savings are shown in brackets

Adding up the various initiatives, a somewhat forbidding figure of more than half a billion dollars per annum emerges. So how are these various savings achieved?

How will Defence make the savings?

White Paper Savings Initiatives

In the case of the White Paper Savings Initiatives, the money was mainly recovered by 'rebaselining' the individual internal Defence budgets in one hit. Where the impact was felt, or how the savings were achieved, remains unclear.

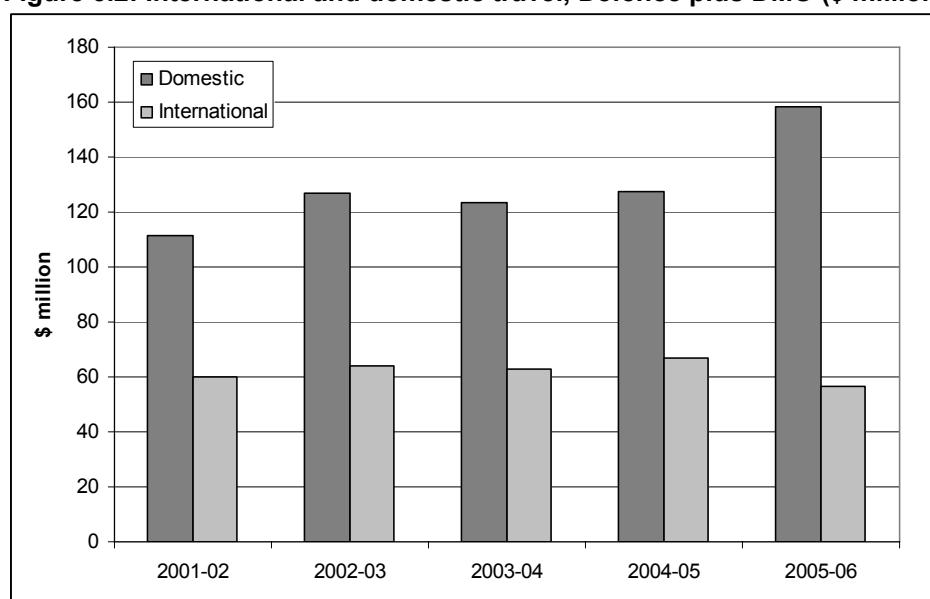
Administrative Savings Initiatives

The detailed steps for the Administrative Savings Initiatives are detailed in Table 2.20 of the PBS which lists 28 separate initiatives that have or will deliver savings as part of the administrative savings program. As can be seen, Defence is actually doing better than required with an excess of \$39 million in savings so far (despite a 13% shortfall in 2006-07). In 2003-04, they exceeded the target for administrative savings by 20%, in 2004-05 by 30% and in 2005-06 by 8%. One of the reasons for this is that Defence continues to improve its housekeeping through both reduced administrative spending and better day-to-day business processes.

Unfortunately, we cannot put the vast majority of the administrative savings measures in any sort of context because we lack a detailed breakdown of how Defence spends its money. For example, it's hard to say anything about the \$20.4 million dollar reduction in 'non-operational overseas positions' without knowing how much is spent on overseas positions. We can, however, examine the annual savings planned for domestic (\$11.5 million) and international (\$7.4 million) travel expenses because the expenses in both these areas are disclosed in the Defence annual report.

Figure 3.2 charts international and domestic travel expenses for the last five years. The data goes back two years before the program of savings measures commenced in 2003-04. In the first year of savings measures (2003-04) there was a reduction of \$4.3 million against a target of \$18.9 million. Worse still, in 2004-05 and 2005-06 travel expenses increased by \$3.6 million and \$24 million respectively compared with the 2002-03 baseline. However, while it is not possible to recover the claimed travel savings from the figures in the annual report, it needs to be remembered that at least some additional travel will have arisen due to the recent high operational tempo. It may be that the savings have been delivered against the baseline for administrative travel, but that this has been obscured by an operational increase.

Figure 3.2: International and domestic travel, Defence plus DMO (\$ million)



Source: Various Defence Annual Reports.

On the surface, it is difficult to see where the claimed \$46.5 million per annum in 'reduction in civilian staff working in administrative areas' have been made. Not only have civilian numbers grown by more than 1,550 since 2002-03 – from 18,385 to 19,935 – but there have been a series of additional civilians explicitly added in administrative areas since the start of 2006. These include: management of IT (+35), financial management (+35), management of the facilities program (+10), staff for the compliance and assurance framework (+102), new functions including financial remediation and controls and stocktaking (+159) and stocktaking, audit remediation, military leave records, financial management controls (+142).

Nonetheless, a good share of the increased civilian numbers is due to civilianisation and backfilling of military positions, the replacement of costly PSP with civilians and government initiatives in areas like intelligence. Later in this section we examine the changes to the Defence workforce over the past decade.

Rationalisation of ADF Command and Control Infrastructure

This is a genuine efficiency dividend; same output, less input. Defence undertook a review of its network of headquarters and found that they could get by with 241 fewer personnel. Credit is due for this self-generated efficiency.

Other Savings Measures

It remains unclear how Defence will deliver the future *Extra Administrative Savings, Progressive Efficiency Dividend and Absorbed Budget Measures*. Ultimately it's for them to work out how to deliver these and the earlier administrative savings. With the more stringent internal budgeting framework that's developed over the last several years, they are much better placed to do so than in the past.

With so much money flowing into Defence, the danger is that a ‘magic pudding’ is created as successive efficiency measures do little more than strip back the steady accretion of administrative overheads. Despite the churn, this is probably not a bad way to protect the taxpayer – provided the demand for savings does not let up.

The Defence workforce 1997 to 2007

The 2007 Defence Management Review Report contained a listing of the number of military and civilian personnel employed in the various groups within Defence. This is the first time since the late 1990s that such detail has been made available.

Analysis of the changing structure of the workforce is made difficult by the almost continual reorganising that Defence undertakes. However, by aggregating allied organisational functions, it is possible to broadly track the evolution of the workforce over the past decade. This is done using fragments of available data in Tables 3.2 and 3.3 overleaf. With the caveat that much is obscured by the splitting and regrouping of entities, the following key observations can be made:

- Compared with the lowest levels recorded during the past decade, the number of civilians has increased in all the broad areas examined including Headquarters/Governance (97%), the Services (57%), Intelligence and Security (97%), Defence Science (23%), Materiel Support (25%), Administration and Base Support (23%). These increases stand in stark contradistinction to prospective reductions under the 2007 Defence Reform Program.
- The number of military personnel working in Headquarters/Governance has grown by 27% at the same time as the number actually working within the Services has grown by 20%.
- The number of military personnel engaged in other areas has fallen including Materiel Support (-65%), Intelligence and Security (-25%), Administration and Base Support (-79%).

Table 3.2: The civilian workforce 1997-2007

	97-98	98-99	99-00	02-03	03-04	04-05	05-06	06-07	2007	% max
Headquarters & Governance										
Minister for Defence	▼	▼	▼	?	?	?	?	?	2	
Parliamentary Secretary	▼	▼	▼	?	?	?	?	?	1	
Minister Assisting	▼	▼	▼	?	?	?	?	?	1	
Chief of Defence Force	▼	▼	▼	?	?	?	?	?	3	
Secretary	▼	▼	▼	?	?	?	?	?	6	
VCDF/Joint Operations	▼	▼	▼	?	?	1045	887	?	190	
Capability Development	▼	▼	▼	?	?	?	?	?	115	
Strategy Executive	▼	▼	▼	?	?	?	?	?	181	
Finance Executive	▼	▼	▼	?	?	?	?	?	221	
Chief of Staff / PR	▼	▼	▼	?	?	?	?	?	270	
Inspector General	▼	▼	▼	?	?	?	?	?	106	
Finance & IG	341	322	▼	?	?	?	?	?		
DHQ	241	234	684	?	?	?	?	?		
Total	582	556	684	?	?	?	?	?	1096	97%
Capabilities										
Navy	446	507	525	741	727	722	711	779	806	
Army	1166	904	684	674	626	625	676	770	786	
Air Force	360	361	398	785	842	858	875	906	934	
Total	1972	1772	1607	2200	2195	2205	2262	2855	2526	57%
Intel and Security										
Security	?	?	?	?	?	?	?	?	▼	
Intelligence	815	832	931	?	?	?	?	?	1,830	
Total	815	832	931	?	?	?	?	?	1830	97%
Science and Technology										
DSTO	2062	2067	2238	2294	2241	2168	2224	2420	2531	23%
Materiel Support										
Joint Logistics	▼	▼	▼	▼	▼	▼	▼	?	850	
Support Command	5284	4458	4324	▼	▼	▼	▼	▼	▼	
Acquisition	1366	1243	1369	▼	▼	▼	▼	▼	▼	
DMO	▲	▲	▲	5957	5942	4364	4620	5006	4,620	
Total	6650	5701	5693	5957	5942	4364	4620	?	5470	25%
Admin & Base Support										
Joint Education/Training	167	130	▼	▼	▼	▼	▼	▼	▼	
Personnel Executive	1589	1460	1637	1215	1063	1089	1209	▼	560	
Corporate Information	504	585	657	?	?	?	?	?	704	
Estate	418	345	350	▼	▼	▼	▼	▼	▼	
Legal	?	?	?	?	?	?	?	?	16	
Corporate Support	2885	3193	2440	4459	4441	3901	3899	4760	4,990	
Total	5563	5713	5084	?	?	?	?	?	6270	23%
other				2260	2421	2982	3096	4865		
TOTAL	17,644	16,641	16,237	18,385	18,303	17,753	18,079	19,461	19,723	12%

Source: Various Defence Annual Reports, 2007-08 PBS, 2007 Defence Management Review Report. The ▼ symbol indicates that the personnel are accounted for in cell below.

Table 3.3: The military workforce 1997-2007

	1997-98	1998-99	1999-00	2007	% max
Headquarters & Governance					
Minister for Defence	▼	▼	▼	1	
Parliamentary Secretary	▼	▼	▼		
Minister Assisting	▼	▼	▼	1	
Chief of Defence Force	▼	▼	▼	17	
Secretary	▼	▼	▼		
VCDF/Joint Operations Command	▼	▼	▼	710	
Capability Development Group	▼	▼	▼	140	
Strategy Executive	▼	▼	▼	208	
Finance Executive	▼	▼	▼	0	
Chief of Staff / Public Affairs	▼	▼	▼	55	
Inspector General	▼	▼	▼	0	
Finance & IG	28	26	▼	0	
DHQ	863	965	895	▼	
Total	891	991	895	1,132	27%
Capabilities					
Navy	10110	10639	11008	11,245	
Army	18700	18416	19341	22,328	
Air Force	8931	8691	9550	11,626	
Total	37741	37746	39899	45200	20%
Intel and Security					
Security	?	?	?	▼	
Intelligence	619	600	441	462	
Total	619	600	441	462	-25%
Science and Technology					
DSTO	23	23	33	16	
Materiel Support					
Joint Logistics	▼	▼	▼	406	
Support Cmd	5673	5026	3927	▼	
Acquisition	767	589	533	▼	
DMO				1,835	
Total	6440	5615	4460	2,241	-65%
Admin & Base Support					
JET	1239	1177	▼	▼	
DPE	3276	2958	1812	453	
Corp Info	771	758	460	393	
Estate	275	192	82	▼	
Legal	▼	▼	▼	33	
Corp Spt	4299	2835	2131	1,166	
Total	9860	7920	4485	2,045	-79%
TOTAL	55,574	52,895	50,213	51,096	-8%

Source: Various Defence Annual Reports, Report of the 2007 Defence Management Review.

Consequently, the 1997 Defence Reform Program shift of uniformed personnel out of support areas has been achieved. There is no doubt that the 20% increase in military personnel within the Services adds to the available combat capability of the ADF.

The ongoing growth in civilian numbers in administration and support areas probably reflects two things: Firstly, and hopefully, the more cost effective use of civilians in positions previously undertaken by uniformed personnel. Secondly, expansion in the number of civilian employees in an organisation flush with money and focused on administration and governance.

Financial management

In recent years, media reports of an ‘\$8 billion Defence black hole’ have given the impression that the department had somehow misplaced, or perhaps lost outright, assets worth around half of their annual budget. The truth, while concerning, is hardly that dire.

At the centre of the matter was the qualification of Defence’s financial statements for 2003-04 and 2004-05 by the Australian National Audit office (ANAO). The form of the qualification was that auditor was ‘unable to, and [did] not express an opinion, as to whether the Statements’:

- had been prepared in accordance with the orders made under the *Financial and Management and Accountability Act 1997* (FMA), and
- gave a true and fair view of Defence’s financial position, performance and cash flows for the year.

These are more serious qualifications than the ‘except for’ qualifications that arose in 2001-02 and 2002-03. These essentially gave an assessment of ‘true and fair’ with a cautionary caveat due to identified uncertainties. In addition, and as was the case in 2002-03, the Department was found to have been in breach of section 48 of the FMA on a technical matter relating to the administration of ‘Special Accounts’. The Secretary of the Department of Defence agreed with the ANAO assessment.

Table 3.4 tracks Defence’s audit outcomes over recent years. While a clear deterioration in the audit outcomes is apparent up to 2004-05, this probably has as much to do with an increasingly accurate understanding of the true situation (and the growing rigour of the auditor) than any dramatic backward step in the substantive situation. Encouragingly, in 2005-06 Defence received an ‘except for’ qualification that represents a strong improvement on the three prior years.

Table 3.4: Defence audit outcomes

Year	Outcome
pre 2000-01	no qualification
2001-02	‘except for’ qualification
2002-03	‘except for’ qualification and breach of section 48 of the FMA
2003-04	‘unable to form an opinion’ qualification and breach of section 48 of the FMA
2004-05	‘unable to form an opinion’ qualification and breach of section 48 of the FMA
2005-06	‘except for’ qualification

Source: *Various Defence Annual Reports*

Similar to previous years, the problems encountered in 2005-06 were that Defence and the ANAO were unable to resolve significant uncertainties in the values assigned to inventory and specialist military equipment.

Does it really matter?

Yes and no. In one sense, whether Defence can precisely account for the *value* of all its assets and liabilities is of little importance. In four years of closely watching the Defence budget, this author has yet to see a single datum emerge from the accounting of assets and liabilities that might usefully inform the management of the defence dollar. After all, if Defence's property holdings were to rise in value by 50% or its military equipment fall in value by 50% what action would need to be taken? If anything, what we have is a compliance nightmare (at least in so far as the mere question of valuation goes) that has diverted resources and energy away from much more important areas of financial management. The only possible exception is the better understanding of employee entitlements that's emerged, but that could have been achieved without all the accrual rigmarole. It's hard to see what will really have been gained even once the battle to tame Defence's rogue balance sheet is won.

But in another sense, it does matter a very great deal. It is symptomatic of a failure to properly manage billions of dollars of assets. The May 2006 ANAO report into the Procurement of Explosive Ordnance for the ADF found that action is needed in respect of: procurement planning, financial management, inventory management and safety & suitability for service assessments for explosive ordnance. In short, pretty much the entire life-cycle of some \$2 billion worth of assets is not being managed as well as it should. Extraordinarily, \$1.04 billion of ordnance was classified as other than 'serviceable'.

When will it be fixed?

Defence has been working to fix its management information systems and to bed-down its business processes since the late 1990s following the Defence Efficiency Review. It's a story of repeated underestimation of the task, growing delays and increasing costs. Hopefully the reforms flowing from the Defence Management Review will accelerate the good progress that has been made to date.

Transparency

The first two ASPI Budget Briefs included extensive suggestions for improving Defence budget transparency. We like to think that this contributed in some way to the very substantial increase in clarity and disclosure in subsequent Defence budget papers. That said, Defence now routinely exceeds the level of disclosure demanded by official guidelines, and this year still further valuable detail was included in the PBS for the first time.

Because Defence continues to improve its disclosure of Defence budget information, there is little point in reiterating previous year's detailed suggestions that remain on the public record. Instead, we've prepared Table 3.5 overleaf that focuses on a number of key areas where we think that the public interest would be better served by greater disclosure.

Table 3.5 Defence Budget Transparency

Suggestion	Status
1. Routinely disclose casualty and medical discharge statistics for ADF deployments.	Nil except through parliamentary scrutiny.
2 Set targets, and report on, the cost, time and technical performance of projects. Just as the US and UK do in a routine and comprehensive manner.	This year's budget included detail on the cost of projects and the sources of increase. A similarly comprehensive disclosure of schedule is yet to appear.
3 Set quantitative performance targets for the activity levels of platforms and units.	Air Force, Navy Aviation and Army Aviation have targets for activity levels. Navy is yet to do so aside from the Patrol Boat days provided for civil surveillance.
4 Set quantitative performance targets for the availability of platforms and units in Outputs.	Navy has availability targets but Air Force and Army are yet to do so.
5 Disclose ADF permanent, Reserve and Civilian personnel numbers for each Output.	Not Achieved.
6 Provide the breakdown of civilian and military personnel numbers across the Defence Groups.	This information has been provided since the 2004-05 PAES and 2003-04 DAR for civilian personnel. Military personnel numbers remain undisclosed (apart from that in the 2007 DMR).
7 Quantify personnel shortages.	Sometimes disclosed through the Senate Estimates process. Last disclosure was in mid-2004.

SECTION 4 – WHITE PAPER UPDATE

The 2000 White Paper set out a decade-long program of capability development – the Defence Capability Plan (DCP) – backed up with a commitment to 3% *average* annual real growth in Defence spending for ten years. In the last budget, the government extended its commitment to long-term defence spending by promising to boost spending by 3% real growth *compounding* from 2010-11 to 2015-16. In this section we examine progress to date on delivering the goals of the 2000 White Paper and explore the consequences of the extended funding commitment. Progress in delivering the DCP is examined in Section 7 of this brief along with other risks to the government’s plans for the defence force.

White Paper Funding

The 2000 White Paper provided \$29.4 billion in additional funding to Defence (as measured in 2007-08 prices). This funding formed the basis of 3% average real growth across the decade. Since then, the schedule of spending has undergone several revisions. Commencing in 2004-05, the PBS has detailed the changes [Table 2.4, page 28] between the original funding and ongoing revisions. Importantly, the changes since 2000 represent a rearrangement of *when* money is spent, rather than *how much* is available. Moreover, the changes have not arisen due to budget pressures. Instead, it’s Defence and Industry’s ability (or inability) to deliver equipment that’s driven changes to the original schedule.

What’s in the White Paper money?

The White Paper provided money in two broad categories (all figures are in 2007-08 prices):

Major Capital Investment: \$20.4 billion

The original White Paper provided \$19.6 billion for major capital equipment. Ongoing revisions to the plan maintain this amount in real terms, although inflation and exchange rate variations have moved the nominal total to \$20.4 billion. This money goes into the DCP.

Operating and Personnel Costs: \$9.0 billion

There’s \$3.0 billion to cover the through-life support costs of new capabilities that will enter service as a result of the DCP. Because of delays in the delivery of projects, some of this spending was deferred in the revision of the funding in 2004-05 and adjusted since then. In addition, the White Paper provides \$1 billion to adjust the operating cost baseline in the Defence budget. This includes offsetting shortfalls in Defence Reform Program (DRP) savings, and partially fixing the logistics shortfall caused by redirecting DRP savings in 1999 to increase the target strength of the ADF from 42,500 to 50,000.

The White Paper also included \$5.0 billion to cover an expected annual 2% growth (above inflation) in personnel costs. Under the current funding model, the Defence budget is indexed annually on the basis of the implicit non-farm GDP deflator (NFGDP) which tends to fall below the real increase in wages and salaries (see Section 2.4 of this brief). Recognising this, the White Paper promised to make up the

difference between the routine indexation received and the real cost of attracting and retaining personnel through a 2% increase in per-capita personnel expenses. In the 2004-05 budget, additional funding was provided to cover a 2.5% per annum real increase in military personnel expenses. Unfortunately, it is not possible to separately identify the personnel and operating cost components of the White Paper funding.

So what's changed?

The original White Paper funding profile appears in Figure 4.1 and the latest profile appears in Figure 4.2. In producing these graphs, we've assumed that the underlying Defence budget (exclusive of deferred spending that has been shifted into those last three years in the revised plan) remains constant in real terms beyond the end of the decade via out-turning at the rate of 1.8% per year (a choice that is explained later). Because we cannot be certain of the out-turning figure – it is so secret that we do not even know why it is secret – figures past 2010-11 are indicative only.

There were a number of intermediate steps between the spending profiles in Figure 4.1 and 4.2. To start with, investment funds in the DCP were reprogrammed (deferred) into the future in the 2002-03, 2003-04 and 2004-05 budgets. In total, more than \$2 billion in planned investment was put off because Defence and industry were unable to deliver the aggressive investment ramp-up planned back in 2000. Then, in the 2005-06 budget, things began to turn around. The DMO performed strongly enough in 2004-05 to provide sufficient confidence for \$300 million to be brought back for 2005-06. In 2006-07, another \$625 billion of spending was returned.

Unfortunately, the situation deteriorated during 2006-07, with \$390 million deferred prior to this budget. Then, in this budget, a further \$1.8 billion has been pushed into the future. In total, over the last six years \$4.5 billion of investment has been delayed and only \$1.1 billion has been reinstated. The net result is more than \$3.3 billion of delayed capability.

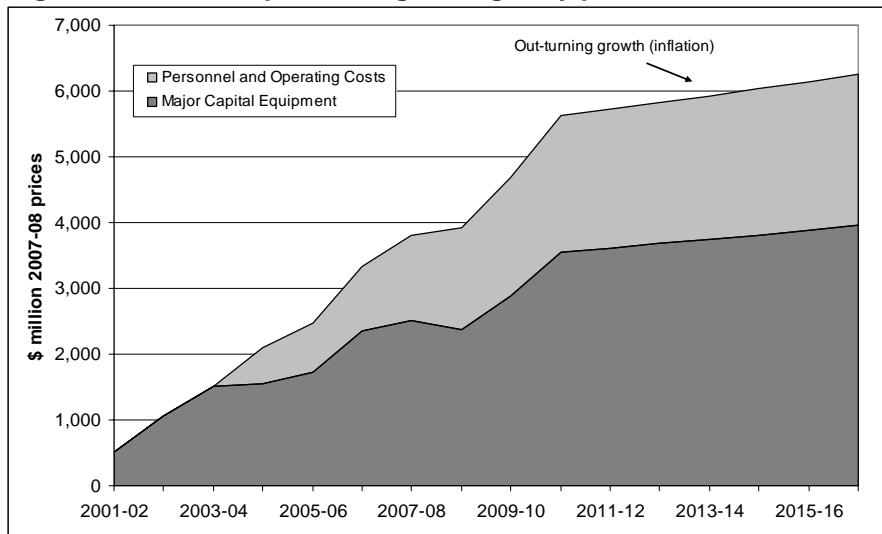
Because of the delays, the next couple of years will demand a steep increase in the rate at which equipment is delivered as deferred spending catches up (see Figure 4.3.), and that's before the additional acquisitions announced in the last two years are taken into account.

3% real growth out to 2015-16

The 2000 White Paper envisaged a ten-year rolling program of defence planning. Built around a new ten-year 'Defence Financial Management Plan', the clear intent was to ensure that financial and capability planning extended out a full decade so that an affordable program of defence capability could be planned and delivered. The White Paper recognised that it was difficult to do 'without a clear understanding of funding levels a decade ahead, and even beyond', hence the original commitment to 3% growth this decade. For this reason, it is surprising that it took five years for the government to make the decision on spending post-2010 that they did last year.

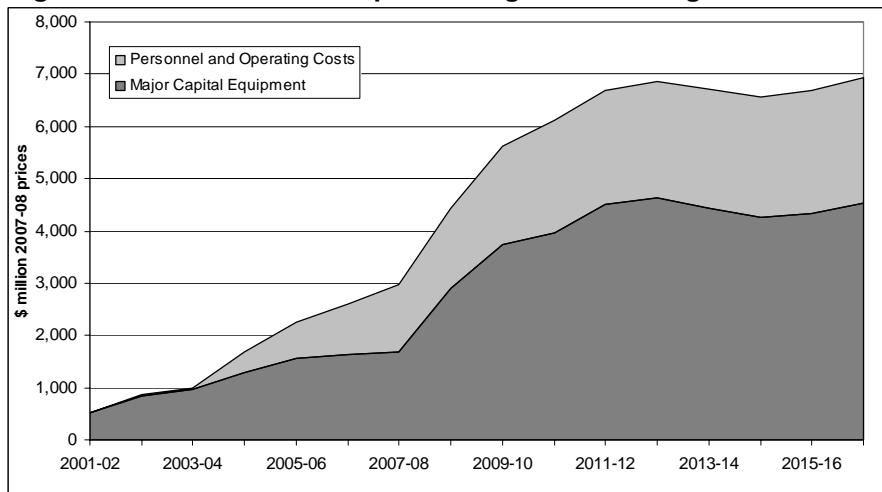
At that time, the government committed itself to continue to increase defence spending from 2010 to 2015 at a rate of 3% above inflation *compounding*. This is more generous than the *average* growth delivered back in 2000. We now turn to examine this new spending in detail.

Figure 4.1: White Paper funding as originally planned.



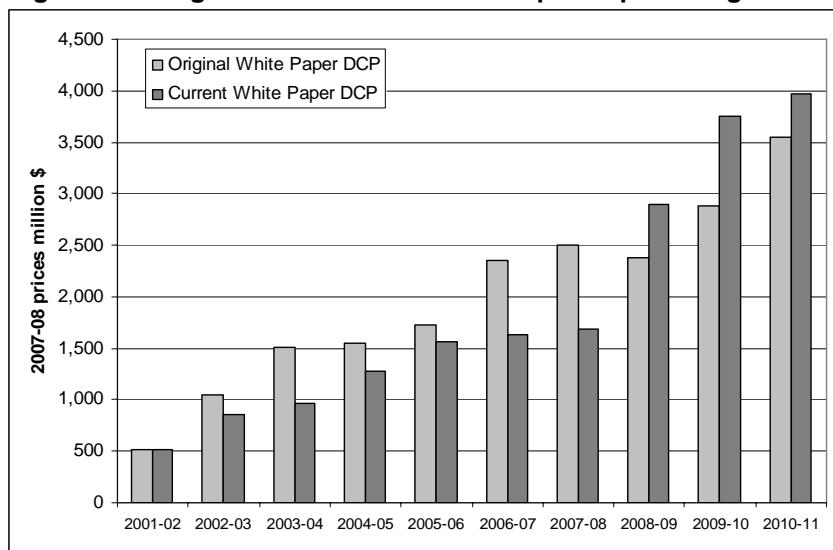
Source: Table 2.4, 2007-08 PBS

Figure 4.2: Revised White Paper funding 2007-08 Budget



Source: Table 2.4, 2007-08 PBS

Figure 4.3: Original and Revised White Paper Capital Program



Source: Table 2.4, 2007-08 PBS

An extra \$10.7 billion over five years

The 3% real growth past 2010-11 takes the form of a five year ramp of additional funding totalling \$10.7 billion. This is detailed in Table 2.5 of the PBS which we reproduce below in Table 4.1.

Table 4.1: Allocation of the 3% real growth funding

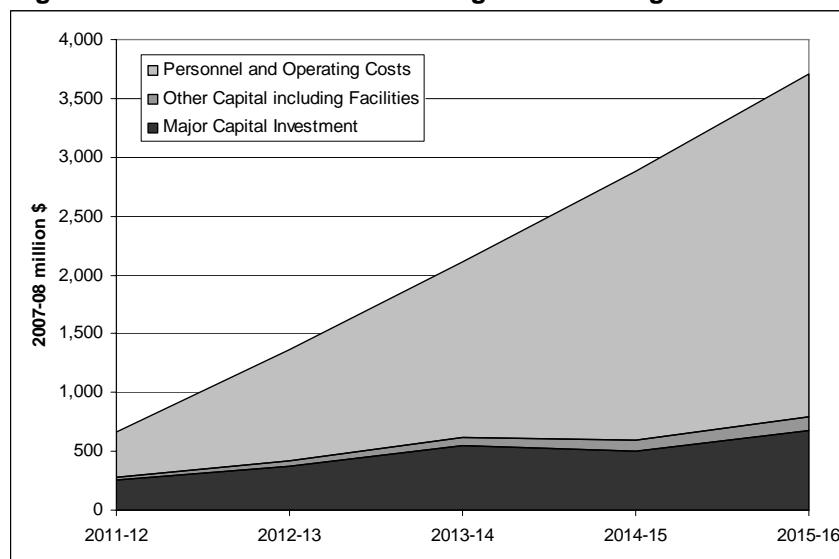
	11-12	12-13	13-14	14-15	15-16	Total
Personnel Costs	150	341	537	740	910	2,678
Living-In Accommodation	49	102	160	221	288	819
Defence Capability Plan	256	379	546	498	677	2,356
Major Capital Facilities Program	17	35	54	74	94	275
Other Capital Purchases	4	8	13	17	23	65
Ops Costs including for New Equipment	50	194	398	853	1,150	2,646
Logistics Sustainment	62	127	193	264	336	982
Facilities Ops Costs/Estate Upkeep	76	180	204	217	226	904
Total Allocation	665	1,367	2,106	2,883	3,705	10,725

Source: Table 2.5, 2007-08 PBS

The first point to make about the allocation of new money past 2010-11 is the extent to which it has been divided across a wide range of activities. This makes good sense. Over the last five years Defence has repeatedly come back to ask for more cash to fund personnel, logistics and estate. Capital investment alone is not enough for an operational defence force. By spreading the new money across the portfolio as in Table 4.1, there is a much better chance that the budget next decade will achieve harmony between personnel, operating and capital investment spending.

To contrast the difference with the original White Paper funding, we've plotted in Figure 4.4 the additional spending post 2010-11 in similar categories as in Figures 4.1 and 4.2. Less than 22% of the new funding is directed to equipment purchases, in stark contrast to the 69% allocated in the 2000 White Paper.

Figure 4.4: Allocation of the 3% real growth funding



Source: Table 2.5, 2007-08 PBS

How big will the budget be next decade?

Good question. Unfortunately, the PBS does not contain the answer. To recover the total budget from the data in Table 4.1 requires knowledge of what rate of NFGDP inflation has been assumed for the period 2010-11 to 2016-17. Regrettably, Defence were unable to oblige us with the figures. So we've had to make-do with reverse engineering the data in the PBS and Treasury papers – without much joy.

The data in Table 1.1 of the PBS implies a NFGDP deflator of roughly 2.4% for the years after 2010-11. However, the 3% additional growth funding from Table 2.5 implies a NFGDP deflator of 1.2% with a baseline funding for 2010-11 of \$21.9 billion. There is no obvious way to reconcile these two results. So in Table 4.2 we've included the range of projected funding derived from these two figures. Unfortunately, the projection is also uncertain because of possible unknown mid-year price and exchange adjustments. Accordingly, the results are at best indicative.

Table 4.2: Best estimate(s) of future defence budget to 2016-17

	projected	budget estimate	forward estimate	forward estimate	forward estimate	ASPI projection	ASPI projection	ASPI projection	ASPI projection	ASPI projection	ASPI projection
Year	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
\$ b	19.9	22.0	23.3	24.5	25.1	24.8	25.2 to 25.5	26.1 to 26.6	27.4 to 28.2	28.5 to 29.7	29.0 to 30.4
deflator	-	-	-	-	-	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%

Given the high profile given to the government's ongoing commitment to maintaining 3% growth in defence spending, perhaps Defence could use the upcoming Senate Estimates hearings to detail how they calculated the additional 3% funding allocation post 2010-11 and disclose the anticipated total budget post 2010-11.

Is it really 3% real compounding growth?

The figure you get for real growth from 2010-11 to 2015-16 depends on whether you calculate it before, or after, the addition of other 2006-07 budget measures and adjustments. If you do it before you get 3% exactly (because that's the way we constructed our estimates). If you do it after, you get a smaller figure because of the skewing effect of large exchange rate shifts and a big boost in 2010-11 for the big projects recently approved, including the Super Hornets, C-17 aircraft and Hardened and Networked Army initiatives. Of course, it makes sense to do the calculation before.

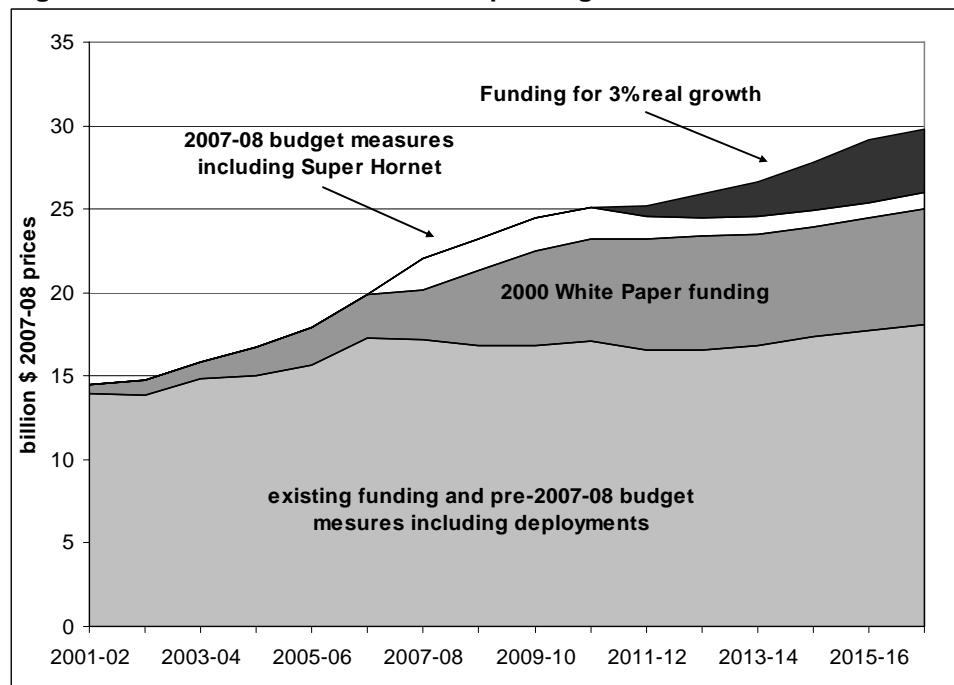
Sources of funding

Figure 4.5 sets out our best estimate of where defence spending is headed and the main sources of funding that go into making it up. The original White Paper funding wedge still dominates the additional funding that Defence has received, but the 3% wedge post 2010-11 makes an important contribution. Interestingly, the substantial extra funding provided in this budget creates a spending hump that does not subside

until after the start of the next decade. To produce Figure 4.5 (and all subsequent analysis) we have assumed that the NFGDP deflator takes on a mid-point value of 1.8% post 2010-11.

Not shown in Figure 4.5 are the mid-year funding boosts from the first stage of the Enhanced Land Force and the initial Recruitment and Retention funding – both of which have been subsumed into the funding base.

Figure 4.5: Best estimate of defence spending 2000-01 to 2016-17



What are the trends?

We've already noted that the additional funding post-2010-11 appears to be a balanced package, but what about the budget as a whole? We explore this question below by looking at the three canonical chunks of defence expenditure: capital investment, personnel and operating costs (= budget – capital – personnel).

Capital investment

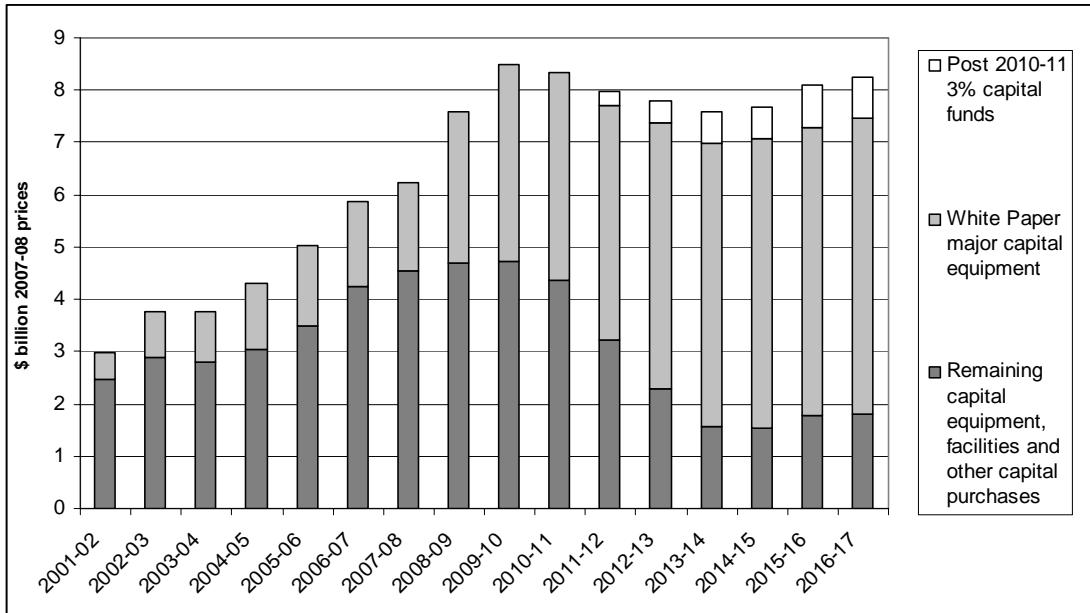
For the second year in a row, the PBS contains a graph of capital investment across the decade [PBS Chart 3.1 p. 69]. We've used the data contained therein along with that for the White Paper [PBS Table 2.4] and post 2010-11 3% funding growth [PBS Table 2.5] to produce Figure 4.6. There are three things worthy of mention:

First, a substantial increase in investment spending is planned for 2007-08. The resulting year-on-year increase amounts to a 23% jump. Fortunately a good part of the increase is due to the military-off-the-shelf (actually out-of-the-factory) purchase of C-17 aircraft and F/A-18F Super Hornet aircraft. Nonetheless, and as Figure 4.6 shows, this is the first step up a very steep hill of investment spending ahead.

Second, as we already alluded to, the relative emphasis on capital investment between the latest 3% funding measure and the 2000 White Paper is very apparent.

Third, the implied level of baseline (pre-White Paper) capital investment is less than \$2 billion per annum. This is surprisingly small given that this is out-turned (inflation adjusted data). It shows that some of what's claimed as 'new investment funds' is really just filling in a pothole in the baseline investment budget.

Figure 4.6: Capital investment – 2001-02 to 2016-17



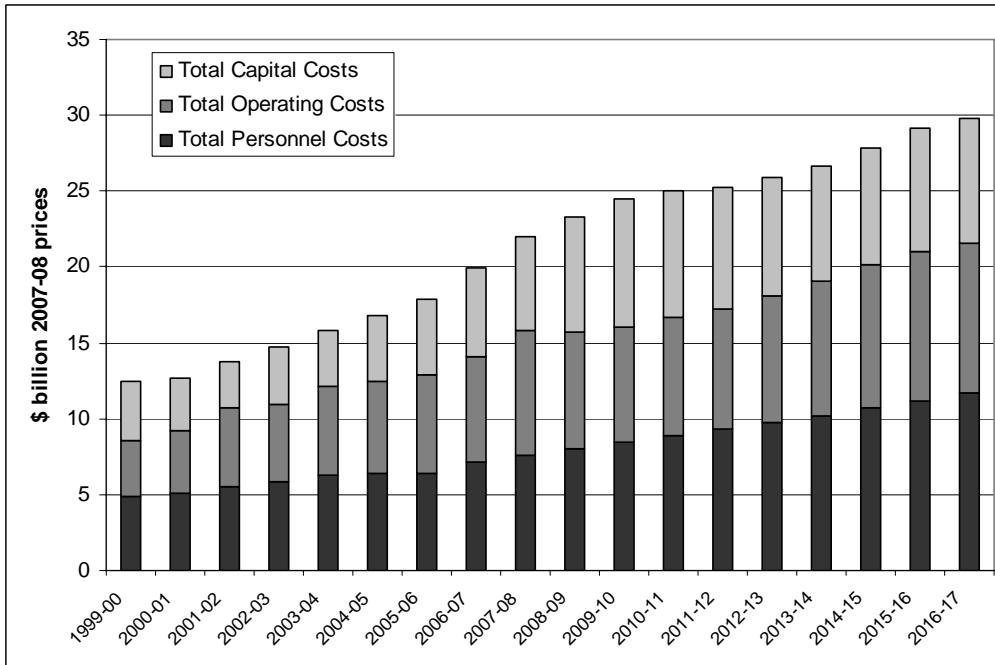
Personnel costs

Under current plans the ADF is funded to grow to 57,360 personnel by 2016-17 (funding has not yet been budgeted for Stage 2 of the Enhanced Land Force). Thus, over the next ten years, the defence force is funded to rise by around 5,860 extra permanent members. At the same time, personnel expenses are anticipated to rise 2-2.5% faster than inflation. Consequently, the budget will be hit by two factors in the coming years: rising personnel costs and, hopefully, rising personnel numbers.

Assuming that the growth in numbers occurs at a steady rate of around 276 people per year past the last official estimate for 2010-11 to deliver a total of 57,360 in 2016-17, it's possible to project the cost of personnel out to that point. Doing this yields a bill of just under \$12 billion in a decade's time (remembering to include the DMO civilian workforce that appears as a suppliers expense on Defence's accounts). With an estimate of personnel costs and a firm figure for planned capital investment from the PBS, we can use our estimates from Table 4.2 to estimate the money left to cover operating costs. The results of this calculation are graphed in Figure 4.7. (We've corrected for the hand-back of \$780 million in 2001-02 to give a more accurate picture of the historical data).

The steady growth of personnel expenses is apparent in the figure as is the planned growth in capital investment spending. Between these two expanding wedges sits the poor cousin – operating costs. Unfortunately, it appears that operating costs are going to be squeezed from next year onwards until a few years into the next decade when the 3% growth funding allows operating costs to expand in unison with personnel and investment spending.

Figure 4.7: Estimated Personnel-Operating-Capital



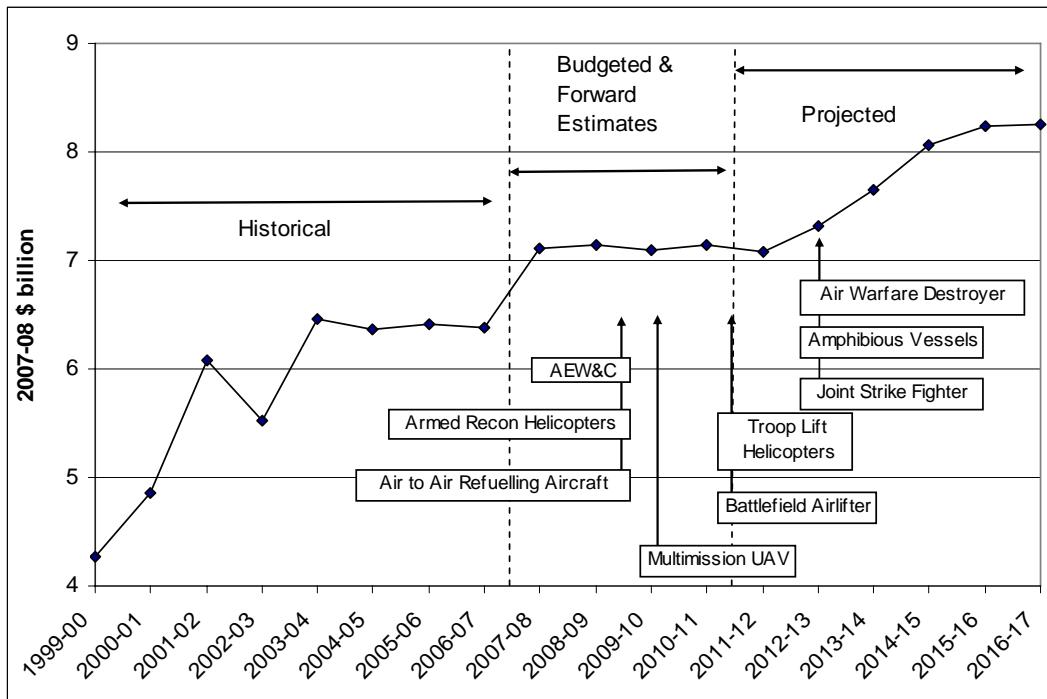
It's dangerous to draw simple conclusions from a graph like Figure 4.7. Not only is there uncertainty introduced by the unknown deflator, but the recent series of overseas deployments skews the picture. These two factors could mean that the apparent squeeze is nothing to worry about. To check, we can correct for inflation and subtract the cost of military operations going back to 1999-00. In doing so, we've isolated capital spending and assumed that 90% of non-capital deployment supplementation goes to operating costs and 10% is attributed to personnel to reflect deployment allowances, etc. In recent years the capital component is unavailable so we have assumed (in this context conservatively) that the funding has had no capital spending attached.

Also, to allow us to focus on the cost of operating existing and planned DCP equipment, we've subtracted the operating costs for the C-17 and Super Hornet fleets. Since these have both been explicitly and fully funded, we need not worry about them here.

The result appears in Figure 4.8, where we've plotted the actual, planned and estimated operating costs since 1999-00 in 2007-08 dollars. From 1999-00 to 2007-8 operating costs have grown by around \$3 billion, or around \$360 million per year. Thereafter, comes a period of zero real growth for four years out to 2011-12 before growth recommences from 2012-13 onwards.

The question is where is the additional money going to come from to operate the new capabilities to be delivered over the next five years? These include the AEW&C aircraft (2009), Armed Reconnaissance Helicopter (2009) Air-to-Air Refuelling (2009), Additional Troop lift Helicopters (2011) and Battlefield Airlifter (2011). Then, in 2013, and with only a couple of hundred extra million available, we'll have to commence operation of the Air Warfare Destroyers, Amphibious Vessels and Joint Strike Fighter.

Figure 4.8: Historical, budgeted/estimated and projected operating costs



Thus, while it looks as though the long-standing logistics shortfall has probably been met in this budget, the looming costs of operating the next generation of equipment do not appear to have been factored in. Consistent with this observation, a ‘net personnel and operating costs’ (NPOC) review is now being undertaken in Defence. No doubt a further bid for funds will be forthcoming – and not just for operating costs, but also for additional personnel. It remains to be seen how many more people Navy need to operate their Air Warfare Destroyers next decade, or Air Force’s new AEW&C aircraft this decade.

Then there is the still unclear cost of delivering some of the larger projects in the DCP that are known to be under cost pressure, like the Air Warfare Destroyer and Amphibious Vessels projects. Not to mention the additional personnel that will be necessary to deliver Navy’s ‘Seachange’ program and those that Air Force are thought to need to regain critical mass in professional and technical areas.

What does this say about Defence planning?

The 2000 White Paper was a ‘bottom up’ attempt to construct an affordable ten-year program of defence activity. It took account of the personnel and operating costs necessary to turn the equipment being purchased into operational military capability. In retrospect, it was overly optimistic about capital and operating costs – both of which have grown well beyond the estimates made in 2000. But the methodology was sound. Unfortunately, seven years later, there is little sign that such a thorough approach has yet taken hold, with the operating costs of new capability yet to be fully addressed in funding projections.

In recent years, it has become apparent that the government prefers to wait until costs are clarified before committing funds. On one level this is understandable – it reduces

the need to make untidy adjustments as information accrues and refinements arise. Yet it is problematic in other respects.

To start with, it foregoes the opportunity to force Defence to take full responsibility for planning an affordable package of capability. In doing so, the incentive for Defence to deliver efficiencies or to plan tightly is much reduced. So long as Defence can simply come back and ask for more money, it will do so.

The *Harvey Norman* ‘pay-nothing to 2010’ funding approach also carries a big risk. Unless the government is fully conscious of the cost of defence into the future, there is always the possibility that they will lack the appetite to meet that cost when the time comes. This occurred back in 2003, when faced with a tight fiscal situation and spiralling defence costs, the government cut two frigates, two minehunters and accelerated the retirement of the F-111 fleet to save money.

Most critically, leaving wedges of future defence costs unfunded is poor public policy. Unless the electorate is aware of how much money is being built into future defence spending, they cannot make an informed judgement on the merits, or otherwise, of the commitments being made. In particular, it is impossible to judge the opportunity cost of spending the money in other ways like education and health.

With an election due this year, transparency of future defence costs is vital. Promises will be made on both sides that will draw down the available surplus. It’s important for the electorate to know how large an implicit claim Defence has on those funds. Fortunately, under the *Charter of Budget Honesty*, if either side commits to deliver the military capability presently planned, the Department of Finance and Administration will have to produce an independent estimate of the cost of meeting that commitment.

Be on the lookout for carefully worded promises to ‘deliver planned defence funding’ rather than ‘deliver planned defence capability’. They are not the same thing.

SECTION 5 – AUSTRALIAN DEFENCE ECONOMICS

This section examines Australia's defence effort from international and historical perspectives. In the process, many of the underlying factors and trends in national and international defence economics will be introduced.

Australia's defence effort in an international context

According to the International Monetary Fund, in 2005 Australia had the fifteenth largest economy on Earth measured at market exchange rates (and seventeenth using Purchasing Power Parity—PPP). From this annual bounty of around a trillion dollars, Australia finds the money to fund its defence. Table 5.1 displays Australia's 2005 defence spending along with that of a selection of countries including allies, regional neighbours and other developed industrial economies around the globe. Note that to ensure a consistent comparison the Australia figures in Table 5.1 are taken from the quoted source rather than from primary budget figures.

Table 5.1: Defence Spending and Burden 2005

2005 GDP		2005 Defence Expenditure		% GDP	
Country	\$US billion	Country	\$US billion	Country	%
USA	12,500	USA	495.3	Israel	8.0
Japan	4,590	China	104.0	Vietnam	6.0
Germany	2,800	Russian Fed	58.0	Singapore	4.8
United Kingdom	2,230	France	53.1	USA	4.0
China	2,220	United Kingdom	51.7	Russian Fed	3.7
France	2,150	Japan	43.9	Pakistan	3.7
Italy	1,770	Germany	38.0	Turkey	3.2
Russian Fed	1,560	Italy	31.4	Indonesia	3.0
Canada	1,131	India	21.7	India	2.7
Spain	1,130	South Korea	20.3	South Korea	2.6
India	800	Australia	15.6	France	2.5
South Korea	787	Spain	13.2	United Kingdom	2.3
Australia	707	Canada	12.8	Malaysia	2.3
Netherlands	628	Turkey	11.7	Australia	2.2
Sweden	358	Netherlands	9.9	Taiwan	2.2
Turkey	363	Israel	9.8	Italy	1.8
Taiwan	356	Indonesia	8.4	Netherlands	1.6
Indonesia	281	Taiwan	8.0	Sweden	1.6
Thailand	178	Sweden	5.9	Germany	1.4
Malaysia	128	Singapore	5.6	New Zealand	1.4
Israel	123	Pakistan	4.1	China	1.3
Singapore	117	Vietnam	3.2	Spain	1.2
Pakistan	110	Malaysia	2.9	Canada	1.1
New Zealand	107	Thailand	2.0	Thailand	1.1
Philippines	99	New Zealand	1.5	Japan	1.0
Vietnam	52	Philippines	0.8	Philippines	0.8
PNG	4	PNG	0.03	PNG	0.5

Source: International Institute for Strategic Studies: 'The Military Balance', 2007.

Table 5.1 mainly uses GDP expressed in US\$ calculated at prevailing market exchange rates, rather than at PPP. Exceptions are made, as in the case of China, where PPP is judged by the source to be a better representation.

Our level of defence spending gives us a budget broadly comparable with India, Spain, Canada and South Korea, but far below the heavy hitters like Italy, Germany, UK, Japan, France and China. The US remains in a class of its own. Importantly, we out-spend all our Southeast Asian neighbours by a reasonable margin.

In terms of defence spending as a percentage of GDP, Australia slips a few places in ranking. We devote a similar share of our national wealth as Italy and significantly more than the Netherlands (1.6%), Germany (1.4%), Spain (1.2%), Canada (1.1%) and Japan (1%). The only fully developed Western countries to out-spend us are the US (4.0%), France (2.5%) and the UK (2.3%). It seems that there are dues to be paid for a permanent seat on the UN Security Council.

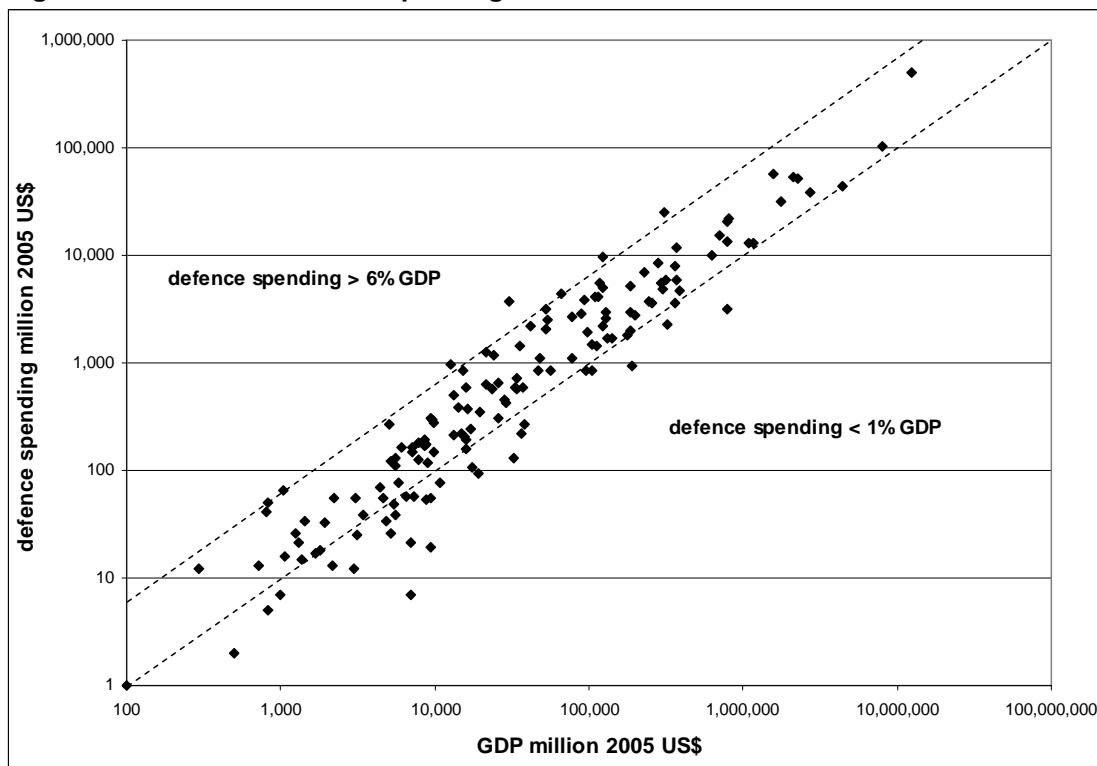
Closer to home, we devote a smaller share of GDP than Vietnam (6.0%), Indonesia (3.0%), India (2.7%), South Korea (2.6%), and Singapore (4.8%), but more than Thailand (1.1%) and the Philippines (0.8%). Not surprisingly, we rank well ahead of New Zealand (1.4%).

To summarise, we spend a greater share than most developed Western nations (the exceptions are all permanent members of the UN Security Council), but a lesser share than most of our significant regional neighbours. This probably reflects three things. First, the synergy derived from collective defence in Western Europe. Second, the reality that our regional neighbours are still developing economically, and therefore have to spend more to meet the demands of what is, in many ways, a more challenging strategic environment than that of Western Europe. Third, the economic dynamics of alliance burden sharing, which allow smaller members of alliances like NATO to free-ride on larger members.

As we have argued in previous Budget Briefs, GDP share is not a measure of the adequacy or otherwise of defence spending – that's something that depends on the task at hand. Rather, as it is presented here, it simply measures the proportion of national wealth that a nation devotes to defence. Often, this is captured by the use of the term 'defence burden'.

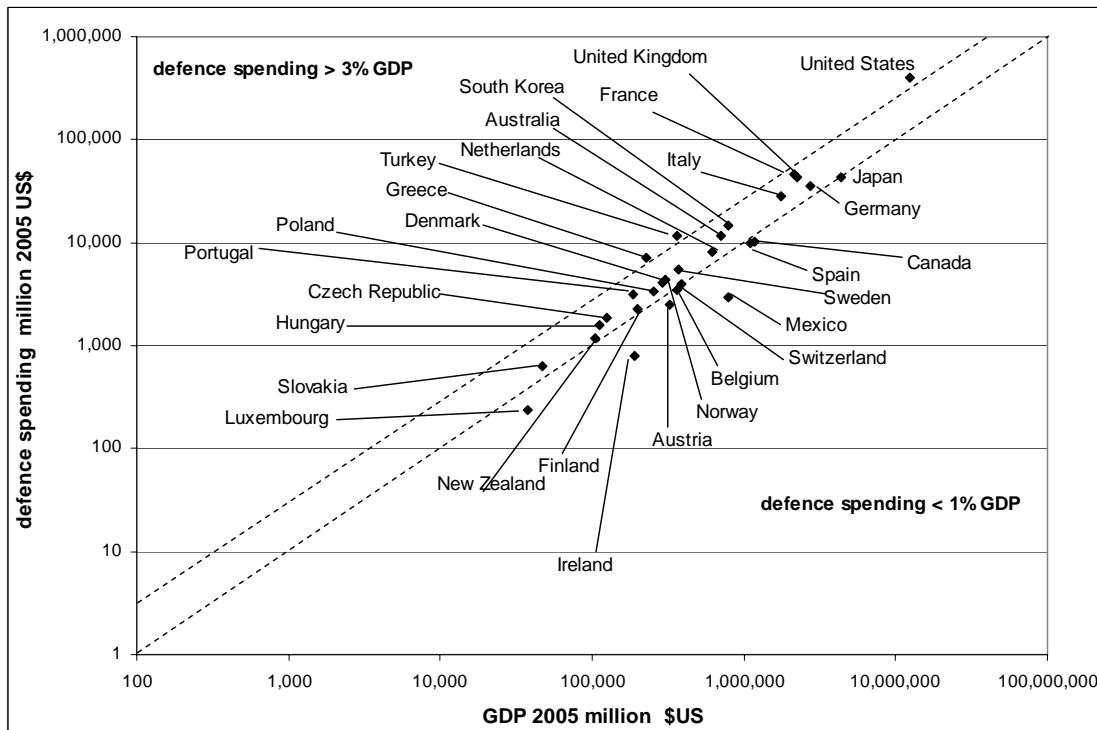
An alternative and often illuminating depiction of the economic resources a country allocates to defence can be achieved by plotting its position on a graph of GDP against defence spending along with other nations. We've done this in Figure 5.1 for some 150 countries based on IISS data. In Figure 5.2 we've isolated the results for (mainly) OECD countries. Unfortunately, we've been forced to use data from 2005 because later data sets are not conveniently tabulated. To properly capture the wide spread of GDP and defence spending values, the data has been plotted on a dual logarithmic scale. This separates out data that would otherwise be clumped together at the lower end of the scale.

Figure 5.1: GDP and defence spending – all countries 2005



Source: International Institute for Strategic Studies: 'The Military Balance', 2007.

Figure 5.2: GDP and defence spending – OECD 2005



Source: International Institute for Strategic Studies: 'The Military Balance', 2007.

A couple of things are immediately apparent. Most obviously, there is a rough correlation between defence spending and economic size; the larger a nation's economy the more it tends to spend on defence. In addition, the vast bulk of nations spend within the narrow band of between one and six percent of GDP on defence. Not

surprisingly, those countries that spend larger shares of GDP tend to have more challenging strategic circumstances than those that spend less, or else they are impoverished nations that need to spend a greater share of their meagre resources to achieve a credible capability. Small shares of GDP spending tend to correlate with advantageous geography, strong alliances and benign neighbours. But another factor is also at play. Economically prosperous developed nations tend, understandably, to be able to provide for their defence with a smaller share of GDP.

Money is not the only resource that a nation has available to devote to its defence; there is also people. Table 5.2 lists populations along with the percentage in the armed services.

Table 5.2: Human Resources

Country	POP 2006	Country	Total Armed Forces	Country	% of POP
China	1,313,313,812	China	2,255,000	North Korea	4.79%
India	1,111,713,388	United States	1,506,757	Israel	2.64%
United States	298,444,134	India	1,316,000	Singapore	1.61%
Indonesia	231,820,879	North Korea	1,106,000	South Korea	1.41%
Pakistan	165,803,946	Russian Fed	1,027,000	Taiwan	1.26%
Russian Fed	142,069,309	South Korea	687,000	Turkey	0.73%
Japan	127,463,244	Pakistan	619,000	Russian Fed	0.72%
Philippines	89,468,677	Turkey	514,850	Vietnam	0.54%
Vietnam	84,402,576	Vietnam	455,000	United States	0.50%
Germany	82,422,390	Thailand	306,600	Thailand	0.47%
Turkey	70,413,559	Indonesia	302,000	Malaysia	0.45%
Thailand	64,631,502	Taiwan	290,000	France	0.42%
France	60,876,178	France	254,895	Pakistan	0.37%
United Kingdom	60,609,457	Germany	254,702	Spain	0.36%
Italy	58,133,033	Japan	240,400	Italy	0.33%
South Korea	48,864,671	Italy	191,152	United Kingdom	0.32%
Spain	40,397,462	United Kingdom	191,030	Netherlands	0.32%
Canada	33,098,041	Israel	168,000	Germany	0.31%
Malaysia	24,385,136	Spain	147,255	Sweden	0.31%
North Korea	23,113,177	Malaysia	109,000	Australia	0.25%
Taiwan	23,036,384	Philippines	106,000	New Zealand	0.22%
Australia	20,264,437	Singapore	72,500	Japan	0.19%
Netherlands	16,491,491	Canada	62,500	Canada	0.19%
Sweden	9,016,774	Netherlands	53,130	China	0.17%
Israel	6,352,883	Australia	51,610	Indonesia	0.13%
PNG	5,670,268	Sweden	27,600	India	0.12%
Singapore	4,492,720	New Zealand	8,951	Philippines	0.12%
New Zealand	4,076,461	PNG	3,100	PNG	0.05%

Source: International Institute for Strategic Studies: 'The Military Balance', 2007.

Here Australia is less well endowed. According to the US Census Bureau, Australia ranked 54th in population in 2006, ahead of Syria and below Mozambique. We have about one-third the population of the larger European powers and less than one-tenth that of the US. In regional terms, we're just a little smaller than Malaysia, North Korea and Taiwan, but only a quarter the size of Thailand and the Philippines. Indonesia has more than ten times our population, and we are but a drop in the ocean

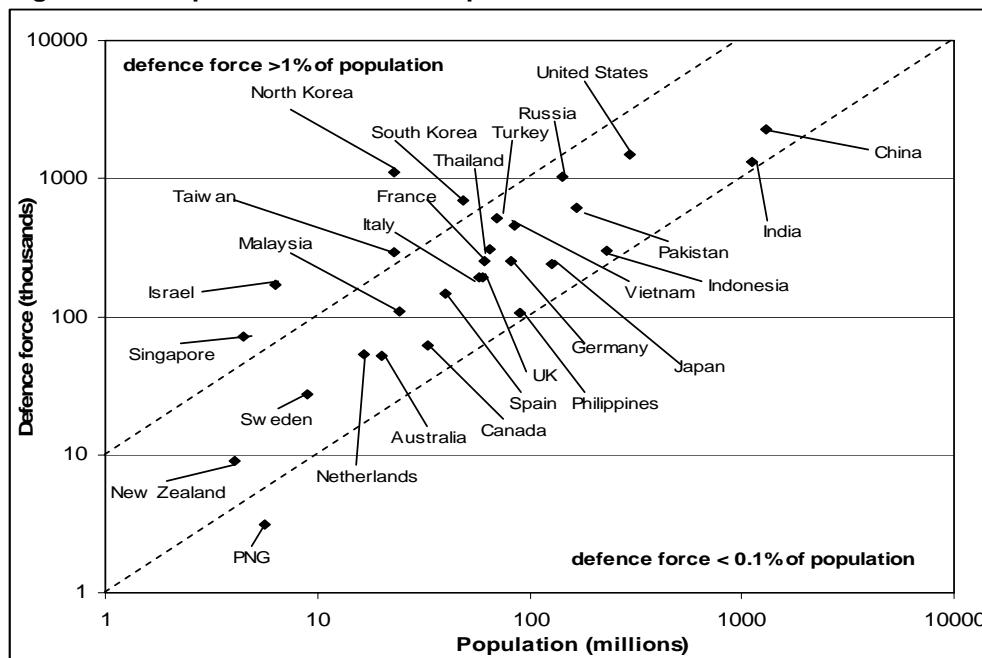
compared with India and China. The sobering fact is that we account for less than one-third of one percent of the world's people.

Our permanent armed forces amount to a bit over 51,000, which puts us near the bottom of the table in our selection of countries. Overall, there are 67 countries with armed forces numerically superior to ours. As a proportion of population, we have one-quarter of one percent of our population engaged as full-time military personnel. This is significantly less than European nations like the United Kingdom (0.32%) Germany (0.31%) and France (0.42%), and even further behind the United States (0.50%). In fact, in our selection, the only Western countries we comfortably beat are those well-known strategic optimists, Canada and New Zealand both of which have their strategic approaches covered by more powerful neighbours). In regional terms, we fall well behind Singapore (1.61%), Malaysia (0.45%) and Thailand (0.47%) but ahead of Japan (0.19%), China (0.17%), Indonesia (0.13%) and the Philippines (0.12%). In general, the trend is that only very populous regional nations devote a smaller proportion of their population to the task of defence than Australia.

Australia's relatively modest ranking in terms of proportion of population needs to be seen in the context of our avowed 'maritime strategy' that has driven force development since the early 1970s, when the 'defence of Australia' doctrine was adopted. With the exception of a short period in the 1960s that saw conscription boost the Army to over 40,000, Australia has never maintained a large peacetime standing Army. Put simply, as a country with no land borders and no prospective adversaries with an amphibious capability, the imperative to develop a manpower-intensive land force is slight.

Figure 5.3 plots the size of the permanent defence force against the population for our selection of nations, with the inclusion of North Korea.

Figure 5.3: Population and defence personnel 2006

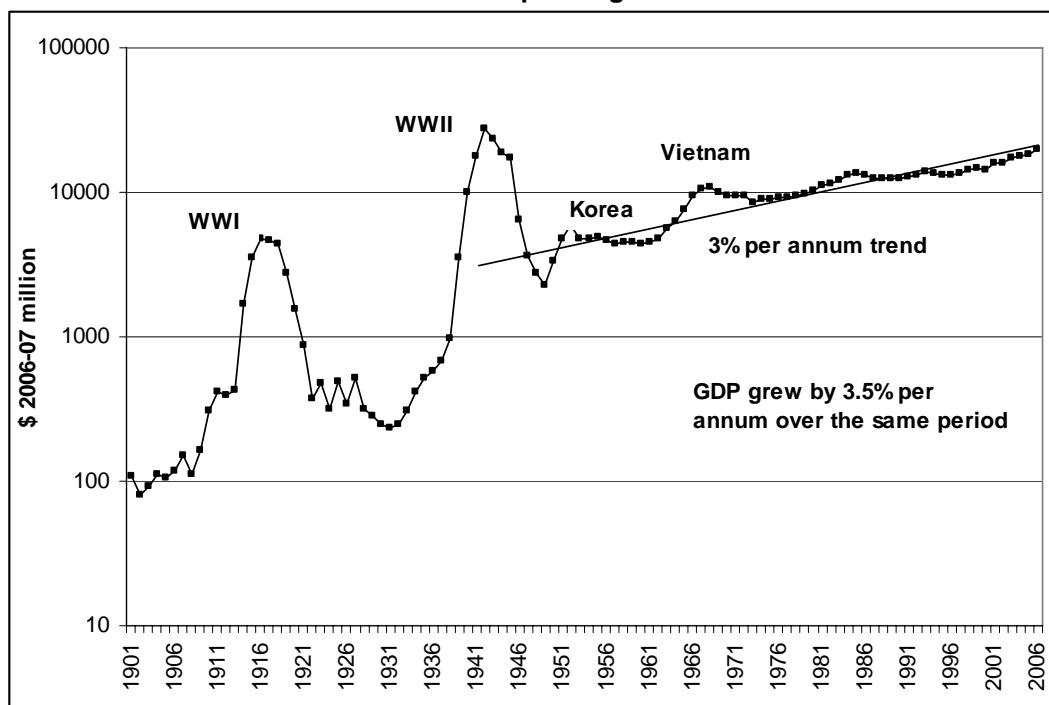


Data source: International Institute for Strategic Studies: 'The Military Balance' 2007

Historical Trends

It's easy to focus on the last decade when looking at Australian defence spending and be impressed by the roughly 3% growth achieved since 2000 and planned through to 2015-16. However, a different perspective occurs if we step back and look at defence spending trends over longer timeframes. Figure 5.6 shows the last 105 years of Australian defence spending expressed in 2006-07 dollars using the CPI. What's interesting is that the post-WW II trend is reasonably approximated by a constant compounding 3% real growth once the perturbations due to Korea and Vietnam are taken into account.

Table 5.6: Historical Australian defence spending



Source data: Correlates of War Project (<http://www.correlatesofwar.org/>), analysis ASPI

This should not come as a surprise. The ADF has been maintained on roughly the same scale (after taking account of contracting-out) for the last fifty years, and the underlying trends in the cost of the inputs to capability have consistently outpaced inflation by 2% to 4%. Specifically, personnel costs have risen by around a real 2% per annum, operating costs by around 3% per annum and the unit cost of equipment by around 4% per annum. It makes sense that the average annual growth comes out around 3% because it's commensurate with these underlying drivers. It's also consistent with the fact that the DCP remains focused on replacing, rather than augmenting, the force structure of the ADF.

SECTION 6 – THE COST OF WAR

Introduction

The 2003-04 ASPI Budget Brief included a full analysis of the cost of all deployments since 1999-00. Since then, rather than repeat that extensive discussion, we've maintained a shorter format. This section includes an explanation of how Defence is funded for deployments, updated tables of historical deployment costs, a summary of the cost of the Iraq, Afghanistan and other recent operations, and an assessment of the impact on peacetime rates-of-effort of recent operations.

What do we mean by the cost of a war?

As a rule, Defence is supplemented for the *net additional* cost of any major military operation. This makes good sense because, in principle at least, it ensures that Defence does not have to compromise peacetime training to fund operations and avoids them having to maintain a contingency reserve to cover unanticipated costs.

Figure 6.1 shows how the net additional cost of an operation is calculated. In the past, Defence only disclosed the aggregate net additional operating cost, the total value of new capital investment and the amount recovered from third parties. However, they now sometimes provide itemised lists of the individual costs incurred in an operation although offsets remain undisclosed.

Figure 6.1 Calculating the ‘Net Additional Cost of War’

$$\boxed{\text{Net Additional Cost of War}} = \boxed{\text{Net Additional Operating Cost}} + \boxed{\text{Net Additional Capital Investment}}$$

Where:

$$\boxed{\text{Net Additional Operating Cost}} = \boxed{\text{Additional costs above normal peacetime expenditure}} - \boxed{\text{Offsetting savings due to cancelled peacetime activities}} - \boxed{\text{Costs recovered from 3rd parties}}$$

Net additional operating costs include the additional cost of personnel allowances, shipping & travel, repair & maintenance, health & inoculations, ammunition, contracted support, fuel, inventory, consumables etc. Offsetting savings include money saved from foregone activities like the cancelled Exercise Crocodile 99 & Avalon Air Show due to the deployment of Australian Forces to East Timor. Those costs recovered from 3rd parties include the partial recouping of costs from the UN when participating in a UN peacekeeping operation.

Net additional capital investment usually represents the accelerated filling of capability gaps specific to the operation. Recent examples include the purchase of additional equipment for the AP-3C maritime patrol aircraft for Iraq, and the rapid

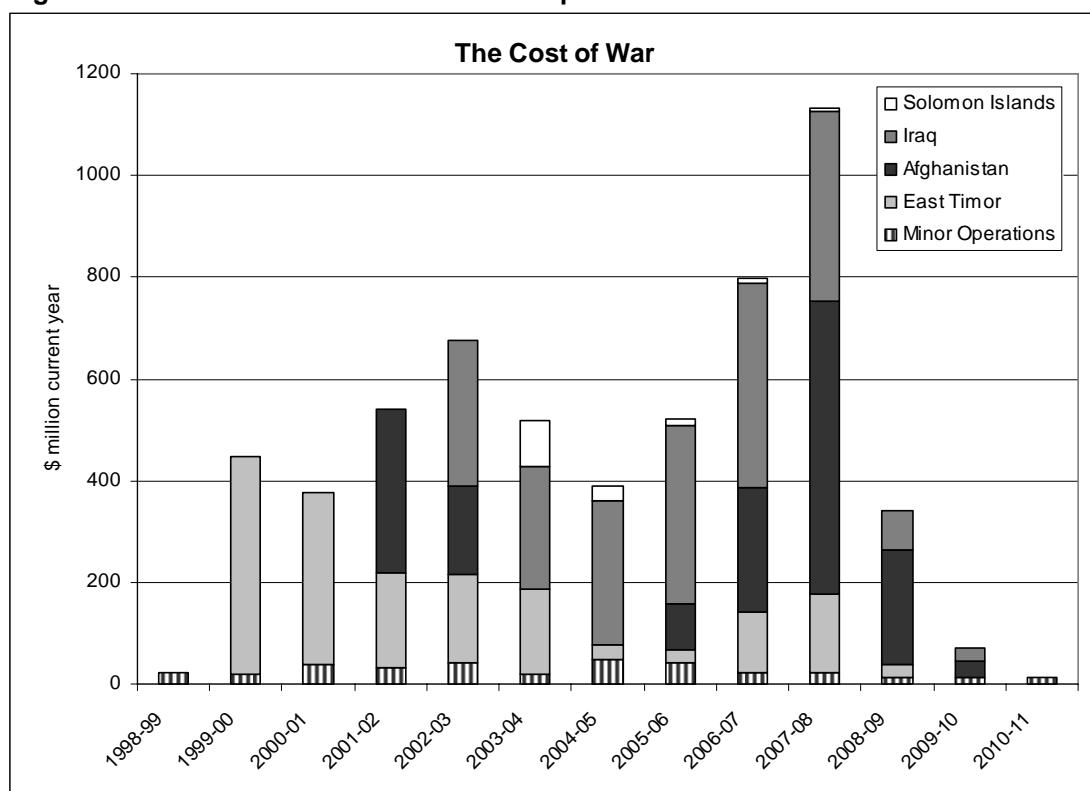
acquisition of the Javelin missile for Afghanistan. The capital cost sometimes also includes modifications to platforms and additional inventory purchases.

Finally, it's worth being specific about what is not included. The net additional cost of an operation does not include pay and allowances that would normally be incurred, nor does it include the cost of operating platforms within the planned peacetime rate of effort (nor does it cover the costs outside of Defence incurred by the AFP, DFAT or others involved in operations). Thus, aside from additional items like new equipment, ammunition, transport and contracted services, the net additional cost is the *marginal* cost of increased ADF activity due to an operation.

What's the big picture?

Figure 6.2 shows the net additional supplementation received by Defence for deployments from 1998-99 through 2008-09.

Figure 6.2: The net additional cost of ADF operations



Source: Defence Annual Reports and Budget Papers

Minor operations include Bougainville which cost \$109 million between 1998 and 2003 (of which \$43.3 million was absorbed by Defence), Border Protection which will incur costs of \$151 million between 2001 and 2010, and the 2006 Commonwealth Games (\$13 million). And in the future: support the 2007 APEC Conference (\$20 million). We have not included the \$175 million spent between 2001 and 2006 on increased security at Defence facilities. Although this was previously called 'Operation Safebase', it is wrong to describe it as an ADF operation.

Figure 6.2 also excludes the ‘force generation’ costs nominally associated with expanding the ADF by 3,555 troops for East Timor in late 1999. This roughly \$400–\$500 million per annum was permanently included into the Defence funding base at the time of the 2000 White Paper. In the figure, Afghanistan includes the Multinational Interception Force (MNIF) which became part of the Iraq operation in March 2003.

As shown in Figure 6.2, the cost of operations has been rising and will rise significantly in 2007-8 with expanded commitments to both Afghanistan and Iraq.

New money for operations in the 2007-08 Budget

The PBS explains the additional supplementation that’s been provided to cover the net additional cost of operational deployments [PBS pages 31 to 35]. Note that the duration of the spending should not be taken as implying anything final about the likely length of deployment because additional money is often provided post-deployment for repatriation and reconstitution of equipment.

Iraq

The government has provided \$389 million over three years to retain an expanded ADF contribution to Coalition operations in Iraq until the end of the forthcoming financial year. There are currently around 1,575 service personnel in the Middle East area of operations including 70 personnel recently dispatched to assist with the training of the Iraqi defence force. The total cost of operations in and around Iraq now stands at \$2 billion.

Afghanistan

The Australian contribution to effort in Afghanistan is being increased by the addition of a 300 strong Special Forces task group to augment the provisional reconstruction team already in place. In February 2008, two Chinook helicopters will be reinserted into the country. Total Australian forces will reach 970 by mid-2007 and will peak at approximately 1,000 by mid-2008. Total new money in the budget for operations in Afghanistan was \$703 million over three years. The total cost of operations in Afghanistan now stands at \$1.66 billion.

Border Protection

The elevated ADF contribution to coastal surveillance will be extended through 2006-07 at a cost of \$13 million.

2007 Asia Pacific Economic Cooperation forum

A total of \$20 million over two years was allocated last year for ‘counter-terrorism, security and ceremonial capabilities’ in support of the 2007 Asia Pacific Economic Cooperation forum in Sydney in 2007.

Impact of operations on peacetime rates of effort

The impact of deployments on planned peacetime rates of effort is often counter-intuitive because rates-of-effort sometimes fall due to disruption caused. For example, despite getting \$14 million for increased AP-3C operating costs due to the Iraq deployment during 2002-03, the fleet fell short of its planned rate of effort by 15% in that year. Table 6.1 lists the rate of effort for key platforms employed in recent

operations. Unfortunately, figures are not available for Navy vessels, although anecdotal evidence is that they regularly deliver substantial numbers of additional steaming days in support of operations well above peacetime rates-of-effort.

In 2005-06, the rate of effort for deployed platforms once again fell below the budgeted level. Note that Defence has not requested supplementation for additional flying hours in recent operations.

Table 6.1: Impact of Deployments on flying hour rates

Platform	Budgeted Peacetime Rate of Effort (flying hours)	Actual Rate of Effort (flying hours)	% Difference
<i>1999-00 (period including East Timor INTERFET operation)</i>			
Blackhawk	9,260	8,179	-11.7%
Kiowa	8,985	8,379	-6.7%
C-130	16,762	13,144	-21.6%
Caribou	5,080	4,356	-14.3%
<i>2001-02 (period including War on Terror & Border Protection operations)</i>			
C-130	14,000	13,102	-6.4%
F/A-18	13,000	11,287	-13.2%
P-3C	8,660	9,624	+11.1%
<i>2002-03 (period including Iraq war)</i>			
C-130	14,000	13,622	-2.7%
F/A-18	12,500	14,077	+12.6%
AP-3C	9,600	8,172	-14.9%
Chinook	1,270	1,364	+7.4%
Blackhawk			
<i>2003-04 (period including Iraq, East Timor and Solomon Islands)</i>			
C-130	15,000	13,992	-6.7%
F/A-18	12,500	12,820	+2.6%
AP-3C	9,100	7,702	-15.4%
Chinook	1,270	876	-31.0%
Blackhawk	8,600	6,864	-20.2%
Kiowa	12,970	11,425	-11.9%
<i>2004-05 (period including Iraq and Solomon Islands)</i>			
C-130	16,000	13,502	-16.0%
AP-3C	8,200	8,431	+3.0%
DHC-4	5,080	3,038	-40.0%
<i>2005-06 (period including Afghanistan, Iraq, East Timor and Solomon Islands)</i>			
Chinook	1,270	1,091	-4.1%
Blackhawk	8,600	6,918	-19.5%
AP-3C	8,200	7,418	-5.0%
C-130	15,000	13,149	-12.3%

Sources: Defence Annual Reports and Portfolio Budget Statements for 1999-00 to 2005-06.

What about the human cost?

It is a mistake to view the costs exclusively in financial terms. Military operations are very demanding and dangerous environments for the individuals involved. Table 6.2 lists the (incomplete) statistics we have been able to find on the human cost of recent operations.

Table 6.2: The human cost of recent ADF deployments

Operation	Deaths	Casualties	Medical discharges	Disability Pensions
East Timor	2	unknown	unknown	499
Afghanistan	1	unknown	23+	unknown
Iraq/Middle East	2	unknown		unknown
Solomon Islands	1	unknown	unknown	unknown
Sumatra Assist Phase II	9			
Fiji 2006	2			

Source: see below

East Timor

As of October 2002 (the most recent data we could find), 486 Australian Defence Force personnel and thirteen eligible civilians were in receipt of a disability pension as a result of service in East Timor. A total of 314 received a pension for disability levels between 10% and 50%, 144 received a pension for disability levels between 60% and 100%, two received a pension at the Intermediate rate, twenty at the Temporary Special rate and nineteen received a Totally and Permanently Incapacitated (TPI) pension. Of the 909 recognised disabilities among the 499 individuals, the largest category of disability was musculo-skeletal (413) followed by psychiatric (175) and ear, nose & throat (117). Of the nineteen former Defence Force personnel receiving a TPI pension, all are suffering from post-traumatic stress disorder. [Source: Senate Question on Notice, 14 October 2002]

According to a newspaper report from early 2007 there had been 236 post-traumatic stress claims made between 2004 and 2006 from East Timor of which 195 were upheld. [Mark Dodd, *The Australian*, 1 May 2007]

Afghanistan and the Iraq/Middle East

As of early 2006 (the most recent data we could find), 121 personnel who had served in the Middle East have been discharged from the ADF. Of these, the largest category was mental health (52) followed by spine (18) and multiple injuries (12). However, it should not be assumed that all of these personnel were discharged because of service on operations. For example, only 23 out of the 52 cases are considered by Defence to be confirmed or possible related to service in the area of operation. [Source: SLC Additional Estimates, Questions on Notice Number 14, May 2006.]

According to a newspaper report from early 2007 there had been a total of 3,200 claims made between 2004 and 2006 for all theatres (including East Timor of which 2,761 had been accepted. [Mark Dodd, *The Australian*, 1 May 2007]

Are we paying too much?

It appears not. Comparing the cost per person incurred by the United Kingdom and Australia in both Afghanistan and Iraq over the past three years (Table 6.3) shows that the net additional costs are similar for both forces, notwithstanding the greater ‘economies of scale’ the United Kingdom enjoys. Note that the low figure for Afghanistan in 2006-07 was due to Australian costs rising due to rapid equipment acquisitions.

Table 6.3 Comparing the United Kingdom and Australia (\$ million)

	Iraq			Afghanistan		
	2004-05	2005-06	2006-07	2004-05	2005-06	2006-07
United Kingdom						
Cost (£m)	£910	£958	£1,002	£67	£199	£770
Indicative personnel numbers	9,200	9,200	8,500	750	2,000	6,000
Cost per person / year (£)	£98,913	£104,130	£117,882	£89,333	£99,500	£128,333
Cost per person / year (\$)	\$244,315	\$245,748	\$292,348	\$220,653	\$234,820	\$318,267
Australia						
Cost (\$m)	\$284	\$351	\$402	\$0	\$91	\$243
Indicative personnel numbers	1,000	1,370	1,450	0	410	480
Cost per person / year	\$284,000	\$256,204	\$277,241		\$221,951	\$506,250
ratio UK/AS	0.86	0.96	1.05		1.06	0.63

Source: House of Common Defence Committee Report HC 379 2007, Defence PBS and DAR.

What do we get for our money?

Table 6.5 lists the net additional cost of recent ADF operations along with a brief description of what the operation entailed. It’s important to note that many smaller operations, and even the extensive support given to the Sydney Olympic Games, occur without any supplementation. We’ve done the best we can to separate out the capital component of the funding but in many cases it is not available. In some cases the figure given for capital represents the minimum amount that has gone towards capital equipment.

Table 6.5 Supplementation received for the cost of recent ADF operations (\$ million)

Operation	Net Additional Operating Cost (\$m)	Net Additional Capital Investment (\$m)	Duration (months)	Description
East Timor 1999-00	429.7	70.4	9	A peak of 6,000 personnel reduced to 1,600 in June 2000. Included 12 Blackhawk plus a troop of Kiowa helicopters, plus extensive airlift (Caribou and C-130) and sealift support.
East Timor 2000-01	335.9	123.5	12	1,610 personnel in theatre. Included 4 Blackhawk and a troop of Kiowa helicopters, Caribou detachment plus airlift and sealift support.
East Timor 2001-02	187.5	0	12	1,470 personnel. Included Battalion Group, troop of Kiowa helicopters plus airlift/sealift support. (Blackhawk & Caribou use unknown.)

Operation	Net Additional Operating Cost (\$m)	Net Additional Capital Investment (\$m)	Duration (months)	Description
East Timor 2002-03	172.4	0	12	1,250 personnel. Included Battalion Group, troop of Kiowa, and detachment of Blackhawk helicopters plus airlift/sealift.
East Timor 2003-04	169.1	0	12	Similar to above but drawing down. By 30 June 2004 there were only around 440 personnel and a Blackhawk detachment remaining.
East Timor 2004-05	27.4		12	Australian contribution to extended UN peacekeeping in East Timor. Around 100 personnel with no helicopters.
East Timor 2005-06	23.9		2	Australian response to request from Timor Leste government for assistance following outbreak of unrest in April 2005.
East Timor 2006-07	120.8		12	Troop numbers vary with need and have ranged between 3,000 in mid-2005 to around 1,100 in mid-2007. Blackhawk (8) and Kiowa (4) helicopters have been involved in the operation.
East Timor 2007-08	152.8		12	
East Timor 2008-09	27.1		-	
Afghanistan & MNIF 2001-02	180	140	9	1,100 personnel. Included 2 Frigates, 1 LPA Amphibious Vessel, 4 F/A-18 Fighters, 2 B707 Air-to-Air Refuelling Aircraft, 2 AP-3C Maritime Patrol Aircraft, C-130 Transport Aircraft, 150 Special Forces plus command elements.
Afghanistan & MNIF 2002-03	169	30	MNIF 9 Afghan 3	1,100 personnel. Included 2 Frigates, 1 LPA Amphibious Vessel, 2 AP-3C Maritime Patrol Aircraft. C-130 Transport Aircraft, 150 Special Forces plus command elements.
Afghanistan 2003-04	-5	0	-	Remediation and repatriation costs
Afghanistan 2005-06	91	?	9	190 strong SF Task Group for 12 months from September 2005 plus and 2 CH-47D Chinook helicopters with 110 personnel
Afghanistan 2006-07	234.2	?	12	240 strong Reconstruction Task Force (and 2 CH-47D Chinook helicopters with 110 personnel until April 2007), growing to around 970 by mid 2007 with the addition of Special Force Task Group.
Afghanistan 2007-08	575.3	?	12	1,000 personnel including Reconstruction Task force plus Special Forces Task Group and two Chinook helicopters and support personnel from February 2008
Afghanistan 2008-09	225	?	12	?
Afghanistan 2009-10	30.9	?	-	Remediation and repatriation costs
Iraq 2002-03	285.3	?	7	2,000 personnel. Included 2 Frigates, 1 LPA Amphibious Vessel, 14 F-18 fighters, 3 C-130 Transport Aircraft, 2 P3C Maritime Patrol Aircraft, 2 x Chinook helicopters, 500 Special Forces, Clearance Diver Team plus command elements.
Iraq 2003-04	240.6	?	12	830 personnel including 279 in Iraq. Deployment included C-130 Airlift detachment, Air Traffic Controllers, AP-3C Maritime Patrol Aircraft, Frigate, Army Training Team, Medical Team various HQ elements and a security detachment for the Australian mission in Iraq.

Operation	Net Additional Operating Cost (\$m)	Net Additional Capital Investment (\$m)	Duration (months)	Description
Iraq 2004-05	284.9	17.3	12	Pre-April 05: 920 personnel roughly as per 2003-04. Post-April 05: 1,370 personnel including a 450 strong Task Group to Al Muthanna province along with 40 Light Armoured Vehicles (ASLAV).
Iraq 2005-06	351.4	62.8	12	1,370 personnel including a 470 strong Task Group to Al Muthanna province along with 40 Light Armoured Vehicles (ASLAV).
Iraq 2006-07	401.2	?	-	1,400 personnel including a 515 strong Task Group to Al Muthanna province along with 40 Light Armoured Vehicles (ASLAV).
Iraq 2007-08	373.1			1,575 – as above but with additional training personnel.
Iraq 2008-09	75.3		-	Remediation and repatriation costs
Iraq 2009-10	28.1		-	Remediation and repatriation costs
Solomon Islands 2003-04	90.4	?	12	Initially 1,400 ADF personnel and an unspecified number of civilians. The size of the operation was reduced as stability returned to the country.
Solomon Islands 2004-05	27.6	?	12	Around 30 ADF personnel who assist with AFP patrols and augment headquarters staff. A larger security detachment of around 200 was temporarily deployed temporarily.
Solomon Islands 2005-06	12.9			Around 30 ADF personnel who assist with AFP patrols and augment headquarters staff. Additional ~ 200 troops were sent in early 2006.
Solomon Islands 2006-07	11.1			Around 140 ADF personnel who assist with AFP patrols and augment headquarters staff.
Solomon Islands 2007-08	6			Around 140 ADF personnel who assist with AFP patrols and augment headquarters staff.

Note: The capital cost of the Iraq operation in the first two years was around \$146.7 million – split unknown. Most supplementation provided in recent years has been in the form of operating costs. Bougainville and Border Protection have been removed from the table this year.

SECTION 7 – RISKS

The government's plans for Defence are not set in stone. Quite the opposite — defence plans are subject to continual revision in light of emerging opportunities, new technologies, shifting priorities and the grinding intervention of reality.

This Section is about the intervention of reality. It examines the risks confronting the delivery of current defence plans; risks to financial sustainability, risks to the timely and affordable delivery of new equipment, and risks to maintaining adequate personnel numbers.

Analysing risk is necessarily a pessimistic exercise and what follows is no exception. It should be kept in mind that the government's plans for Defence are ambitious and therefore inherently risky but, that as a result of ongoing reforms, Defence is getting better at managing risks. Even so, Defence has some considerable way to go before it is close to best practice in this regard (see Section 3) and some risks are simply beyond the Department's influence in any case.

Financial risk

Defence plans can fall foul of financial risk in one of two ways. The plans can turn out to be unaffordable within the allocated budget, or the government can change its mind. While the former can be fixed if the government is willing to provide more money, there is no redress for the latter beyond plaintive lobbying. We begin with the question of whether there's enough money in the projected budget to deliver current plans.

Is there enough money in the budget?

Looking back to the 2000 White Paper, it's clear that the cost of delivering the planned range of new capabilities, and level of preparedness, far exceeded the allocated budget. Even taking account of some 'capability creep' in both sectors which exacerbates the situation, there simply was never going to be enough money. The estimates of 2000 were made before ongoing improvements to Defence's financial processes began and well before the Kinnaird reforms to investment planning so the question is; how much better off are we today?

In terms of capital investment, the revised DCP of 2004 saw an average cost increase of 20% for those projects that survived from the 2000 plan. These cost increases were accommodated within the DCP funding envelope through a combination of deferral and cancellation. In contrast, the 2006 DCP saw only an average 2% growth in the cost of projects brought forward from the 2004 plan. This would seem to indicate that Defence has become better at estimating the cost of projects.

This reassuring observation needs to be tempered by reports of cost increases in the Air Warfare Destroyer Project (up from an estimated \$4.5–6.0 billion to more than \$7 billion) as well as mounting pressures on the \$1.5–2 billion Amphibious Vessel and around \$3 billion Land Vehicles projects. Then there was the unanticipated \$6 billion increase in the cost of maintaining the RAAF air-combat capability through the acquisition of 24 Super Hornet Fighters. So, while there may have been some

improvement to Defence's ability to estimate investment costs, a systematic bias to underestimate appear to be alive and well.

As for recurrent spending, the recent record is hardly more reassuring. Table 7.1 lists the additional funds explicitly injected into the Defence budget since 1999 exclusive of capital investment, operational supplantation, price indexation and initiatives to deliver more capability. All up, the recurrent baseline cost of Defence has grown by an average of around \$150 million per annum over the past eight years. (Over the same period \$5.4 billion has been committed for operational deployments.)

Table 7.1: Accumulated increases to annual baseline funding (nominal \$ million)

	Personnel	Estate	Logistics	Total
White Paper ¹				550
2003-04 PBS			260	260
2004-05 PBS	163	100	153	416
2006-07 PBS	50		7	57
2006-07 PAES ²	60			60
2007-08 PBS	210		240	450
Savings ³				-550
Total	483	100	660	1,243

¹Includes retention of \$400 million per year East Timor supplementation. Excludes \$500 million over five years provided for personnel initiatives. ²Excludes the 'gap year' initiative which delivers extra personnel. ³Savings are detailed in Section 3 of this brief.

Several conclusions are possible from the ongoing 're-baselining' of the defence budget shown in Table 7.1. An optimist would conclude that we're close to redressing the systemic under-funding that accumulated during the 1980s and 1990s when the budget was held constant in real terms. A pessimist would say that increases to the baseline will have to continue because real costs will outpace the indexation Defence receives. A cynic would say that Defence lacks external budget discipline and therefore further cost increases are inevitable.

The merit of these views is hard to judge on the basis of publicly available data. All hold some truth, but a pragmatist would err on the side of the cynic and pessimist and conclude that more money is required until such time as baseline supplementation actually ceases. That seems to be a long way off given the level of additional baseline funding in recent years. When the gap in future operating costs identified in Section 4 of this brief is added to the problem identified here, it seems a safe bet that more money will be needed down stream.

Finally, there's the possibility of future bids for higher personnel numbers; not as an expansion of capability (as occurred recently with Army's two new battalions), but in order to maintain existing capabilities. Navy is trialling a program called *Seachange* that includes the overmanning/multi-crewing of vessels to facilitate individual respite and training. This innovative scheme is designed to provide an improved work/life balance for personnel and thereby redress recruitment and retention problems. If accepted, Navy will require additional personnel to roll out the program to the fleet. Air Force is also believed to want more personnel to sustain their existing range of capabilities. If, for arguments sake, an extra 2,000 personnel are needed to satisfy both

demands (a figure on the low side of recent speculation) at least an extra \$200 million per year will be required

Thus, on all fronts – capital, operating and personnel – the consistent trend has been for future costs to be underestimated. This systematic bias is not unique. The US Congressional Budget Office estimates that the Pentagon's current plans entail a 'cost risk' of at least 12%; consistent with the escalation factor that has emerged from Russell Hill in recent years.

The government seems sanguine nonetheless. Not only have they remained scrupulously true to their promises on defence funding, but they have been willing to make up the difference when pressures have emerged. The question is; will they continue to do either in the future?

Will the government keep its promises?

When it comes to defence spending you must have some sympathy for the government. If it is frugal, it is accused of 'neglecting security' or worse still 'endangering the men and women of the defence force'. If it is generous, it is accused of 'building in future costs that might be unsustainable' (including by the author in the past). They can't win.

Unsustainable costs are currently the fear. Rising baseline costs, unplanned ad hoc multi-billion dollar acquisitions and under-funded operating costs for future capability are piling up one upon the other. However, while this means there will be almost certainly be additional costs to be met in the future, that does not *necessarily* mean that they will be considered unaffordable when the time comes. Unless, that is, the Defence budget is creeping up to some threshold of economic or fiscal pain that will put the brakes on the government's willingness to spend.

Economic limits

In wartime, the limit on defence spending is set by the size of the economy, plus the funds that can be borrowed from overseas, minus that level of non-defence activity needed to feed and care for the population. At the height of WWII, the United Kingdom spent in the vicinity of 60% of GDP on the war effort. Here in Australia, spending peaked at 37% of GDP in 1943 at which point 65% of the country's workforce was devoted directly (35%) or indirectly (30%) to the war. But while this is interesting, it's hardly relevant since we are unambiguously not a nation at war.

In peacetime, the economic limit on defence spending is ultimately political: how much of the nation's wealth should be diverted to defence at the expense of current consumption and investment for future prosperity? There is no unambiguous answer to this question because it depends on the level of perceived insecurity and the competing alternatives that are present for taxpayer dollars.

What is clear is that it would be much more difficult to justify high defence spending at a time of falling living standards than at a time of rising ones – the political dynamic would be qualitatively different. Furthermore, because defence spending crowds out consumption and, critically, investment for the future, there is a level of defence effort where individual prosperity would eventually cease to rise. In the Cold War, the United States kept below this threshold despite defence spending

approaching 10% in the early 1960s, as did Australia when our defence spending reached 3-4% of GDP in mid to late 1960s. Clearly, with the economy growing strongly and defence spending a modest 2.0% of GDP, we are a long way from having to worry about even approaching a peacetime economic limit on defence spending.

Fiscal limits – near to medium term

The Treasury's projection of the government's fiscal situation (i.e. surplus or deficit) is set out in Table 7.2.

Table 7.2: Australian Government fiscal balance

	2006-07	2007-08	2008-09	2009-10	2010-11
Fiscal Balance \$b	11.9	10.0	11.9	14.1	13.7
% GDP	1.2%	0.9%	1.10%	1.2%	1.1%

Source: 2007-08 Budget Paper No.1

On the surface, things look rosy. Government outlays represent 22.4% of GDP so that a 1% surplus is a sizable margin of comfort. But this is an election year, and on past experience we can expect the projected surplus to run down somewhat. In 2004 there was around \$5 billion per year available corresponding to around 0.5% of GDP. After pre-election commitments, the margin had been chewed down to 0.2%.

Over the last three years we've been fortunate. Favourable economic conditions have swollen the meagre fiscal balance left from the last election to allow extra money for defence and other portfolios (not to mention a couple of tax cuts). We might not be so lucky in the next electoral cycle. Even so, with government coffers in projected surplus across the next four years, there's no cause for hand-wringing yet. *This is about as good as it gets.*

Even though deficits have arisen in 19 out of the past 34 years, there would be political damage to any government that went into the red. Rightly or wrongly, fiscal deficits have become synonymous with economic mismanagement. The infinitesimally thin line between surplus and deficit is a barrier that no government is eager to cross.

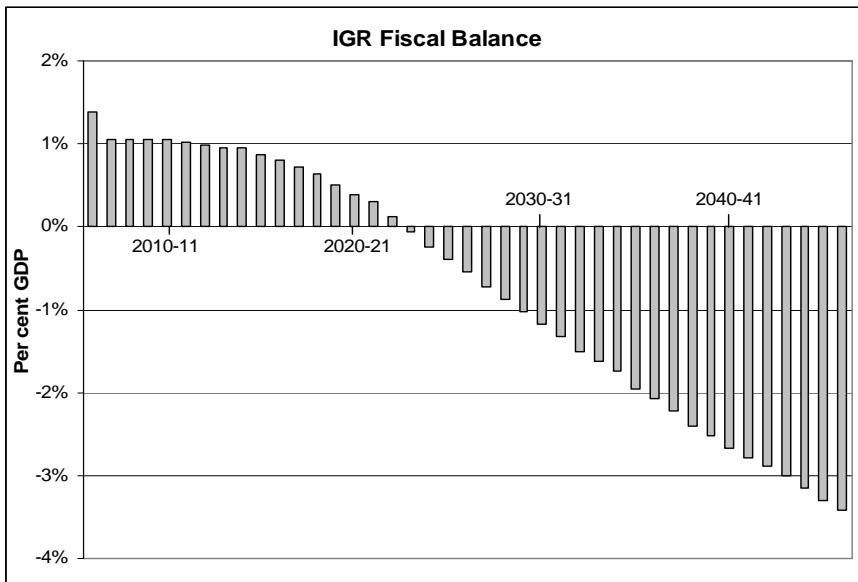
Thus, if the fiscal balance becomes finely poised after the election, we should not count on any extra money being easily available for defence in the near term. On the positive side, we have no reason to anticipate that the government will reduce its financial commitment to Defence, on fiscal grounds that is, provided that Treasury's projections materialise.

The news gets even better. According to the Treasurer's 2007 *Intergenerational Report* (IGR), this relatively healthy situation should remain the case all the way out to the middle of the next decade. Figure 7.1 shows the fiscal balance projection from the IGR. The latest budget changes things slightly but we need not be concerned with such adjustments for our purposes.

The IGR estimated the fiscal balance for the Australian Government out to 2046 on the basis of projected trends in government expenses and assuming that revenues remain at 22.1% of GDP. In the process, a sensitivity analysis of alternative scenarios for future population, participation and productivity was undertaken. Broadly speaking, the overall picture in Figure 7.1 remains qualitatively true, especially in the

near to medium term. As far as slowly evolving demographic and economic factors go, the projection for the next decade looks robust.

Figure: 7.1: The 2007 Intergenerational Report



Source: 2007 Intergenerational Report

So far, so good. On current projections the government's overall fiscal situation will remain manageable for the next decade. Note, moreover, that the IGR assumption of fixed revenue share of GDP implies that the government will return the bounty generated from taxation bracket creep (the gift that keeps on giving to Treasury). There is always the option of retaining that additional revenue to fund higher spending and remain in surplus if necessary.

However, the IGR did not explore the impact of an economic downturn, nor is this taken into account in Treasury's near-term estimates set out in Table 7.2. That's reasonable given what Treasury were modelling in each case. But we are concerned with understanding risk, and an economic down-turn constitutes a risk to the government's fiscal flexibility, at least at first sight.

What impact would a recession have?

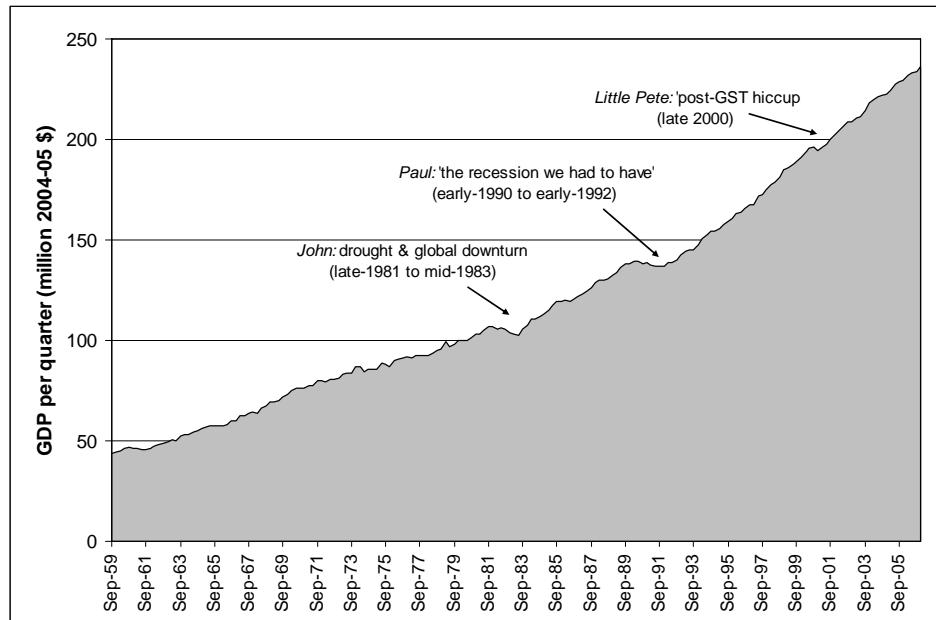
In the past 45 years there have been 37 quarters where economic growth has been negative (see Figure 7.2). Among these retrograde steps, there are many clusters but only two that stand out. The first occurred in 1983-1984 when John Howard was Treasurer. Resulting from a severe drought and global economic downturn, it saw the economy contract by 2.1% over 24 months.

The second was the 'recession that we had to have' under Paul Keating in 1991-1993, which saw the economy contract by 0.7% over 24 months. For ease of reference, we will henceforth refer to these down-turns in the manner of cyclones by naming them *John* and *Paul*. The post-GST downturn (*Little Pete*) is too small to warrant further examination.

In the short-term, recessions directly impact the fiscal balance in two ways: the reduced size of the economy puts downward pressure on government revenues, and

increased unemployment puts upward pressure on government spending. Both factors, coupled with the conventional response of governments to spend more in order to promote growth, push the balance into the red.

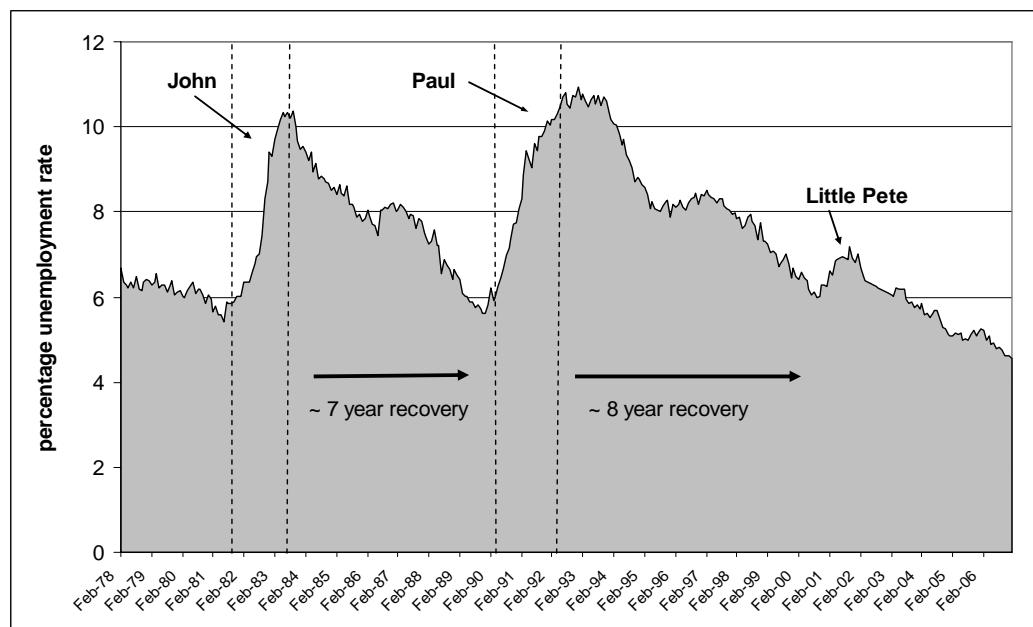
Figure 7.2: Economic growth 1959-2006



Source: Reserve Bank of Australia, www.rba.gov.au.

In the medium-term the economy recommences growth from a lower starting point than would have otherwise been the case, although with surplus labour and capital capacity to fuel stronger growth. Unfortunately, it is a long road to economic recovery, with 7-8 years necessary to get back to the level of unemployment prevailing before the recession (Figure 7.3).

Figure 7.3: Unemployment 1978 - 2006

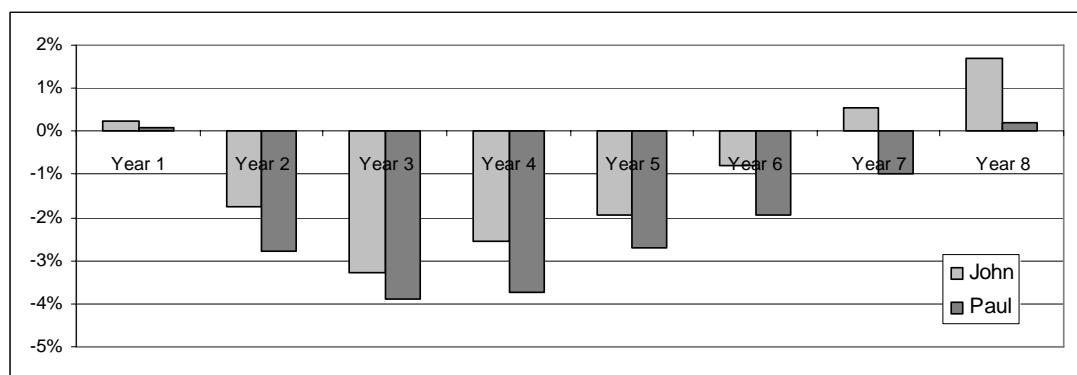


Source: Reserve Bank of Australia, www.rba.gov.au.

The overall impact on the fiscal balance of a recession like *John* or *Paul* is difficult to predict. Modelling of the *direct* impact of reduced revenues and increased spending due to unemployment payments is straightforward. For example, if a recession like *John* or *Paul* were to hit in 2010, conservative modelling of the direct fiscal consequences suggests that the fiscal balance would fall to around minus 1% of GDP and take 5-6 years to return to surplus. But this is only the start, since the largest impact on the fiscal balance is likely to come from the government spending in an attempt to rebuild economic activity and create jobs. It is impossible to foretell the level of additional spending ahead of time, but in the past it has dwarfed the direct impact of a smaller economy and higher unemployment pool.

The best we can do is look at the actual fiscal impact of *John* and *Paul* at the time, as in Figure 7.4.

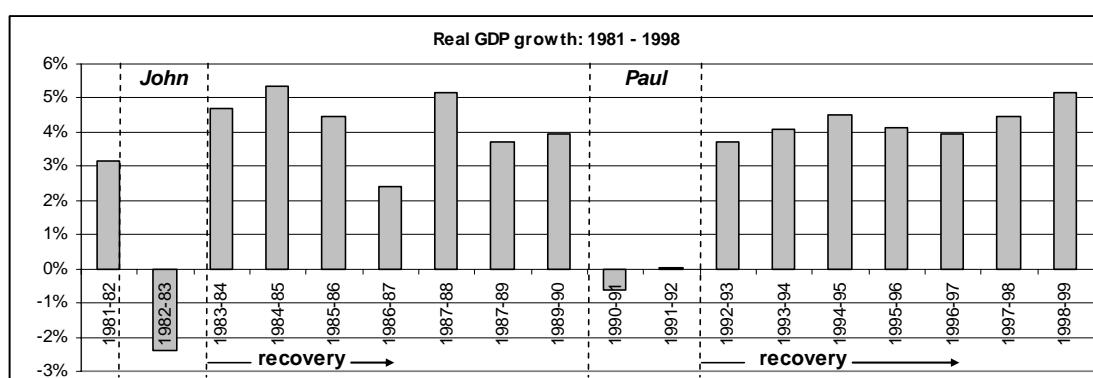
Figure 7.4: Fiscal balance and recessions

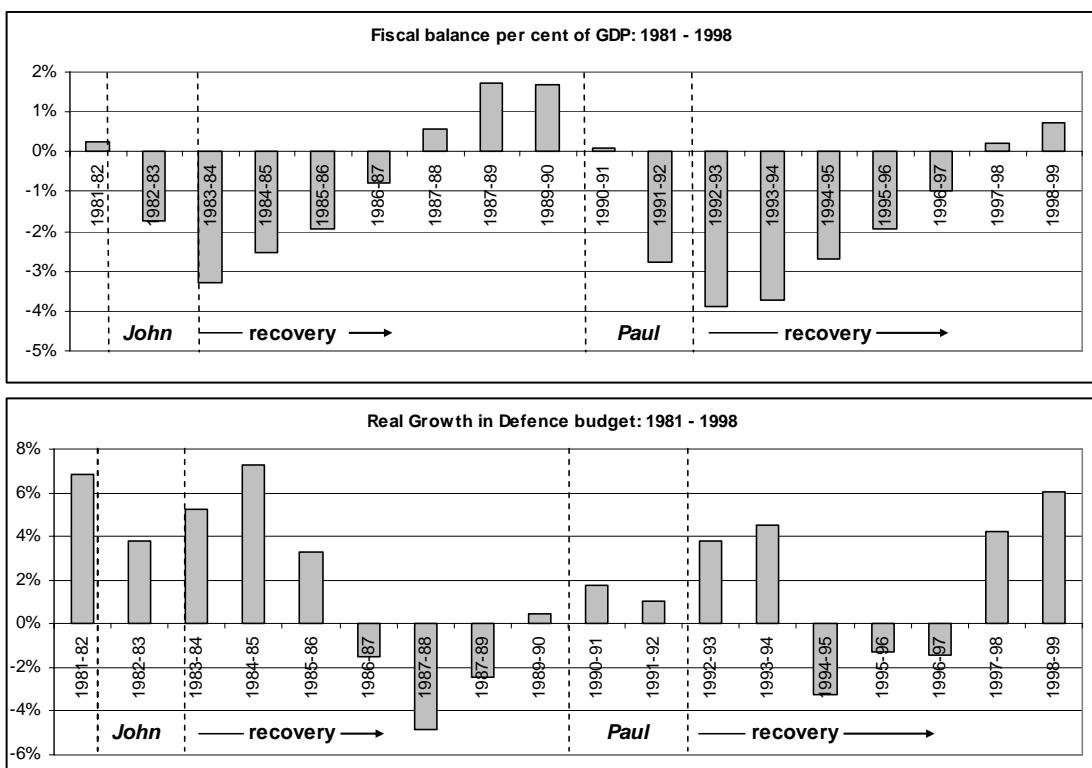


Source: Treasury Budget Overview 2006-07 and ASPI analysis

Assuming that the past is a guide to the future in this regard, Figure 7.4 implies that whether we were to cop a *John* or a *Paul*, the outcome would be the same; the government would run a deficit for 5-6 years with a peak magnitude of 3–4% of GDP. It might be expected that such a prolonged and serious fiscal imbalance would put downward pressure on the defence budget, particularly since (import dependent) defence spending is an expensive way to create jobs. Yet the historical record does not bear this out. Figure 7.5 shows the fiscal balance, GDP growth rate and defence spending growth rate for the period commencing with *John* through to the recovery following *Paul*.

Figure 7.5: GDP growth, fiscal balance and defence spending growth

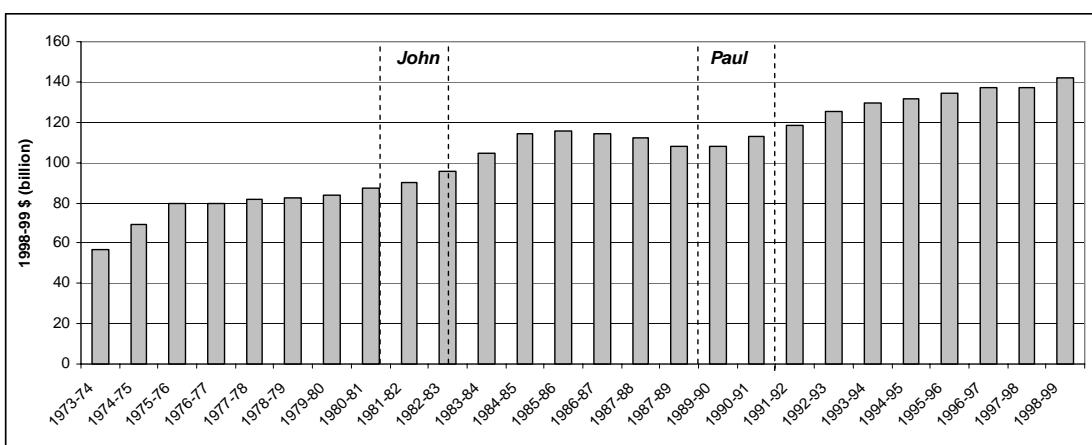




Source: Reserve Bank of Australia, www.rba.gov.au and Treasury Budget Overview 2007-08 and ASPI analysis.

Somewhat counter-intuitively, there was no precipitous fall in defence spending during *John* or *Paul*. In fact, spending grew during and immediately after both recessions. At worst, there was a contraction of defence expenditure following the recovery from *John* and a similar decline at the tail end of the recovery after *Paul*. While one could argue that rigidity in defence spending commitments caused a time delay before the down-turn flowed through to defence, but there is considerable flexibility in both capital investment and personnel numbers. The more probable explanation is that once innocence was lost by falling into deficit, the government had little inhibition in continuing to spend – including on defence – until the economy edged back to full capacity. Figure 7.6 shows how the government spent money like a drunken sailor after they fell off the fiscal wagon in 1982 and 1990.

Figure 7.6: Real Australian government spending 1973-1999



Source: Treasury Budget Overview 2007-08.

On past experience, therefore, a recession would not necessarily force cuts to defence spending and might even make it easier to accommodate growth. Provided defence spending is prudent and broadly understood by the electorate, as it was when *John* and *Paul* hit the economy, a recession would not stop the government from spending what was necessary to secure the nation. Of course, if defence spending was perceived to be profligate or inefficient, the outcome could be quite different.

Nonetheless, there is no purely fiscal reason why the government cannot sustain and even further increase its planned defence spending over the next ten to fifteen years – come a recession or not. But what about when the underlying fiscal situation erodes in the long-term?

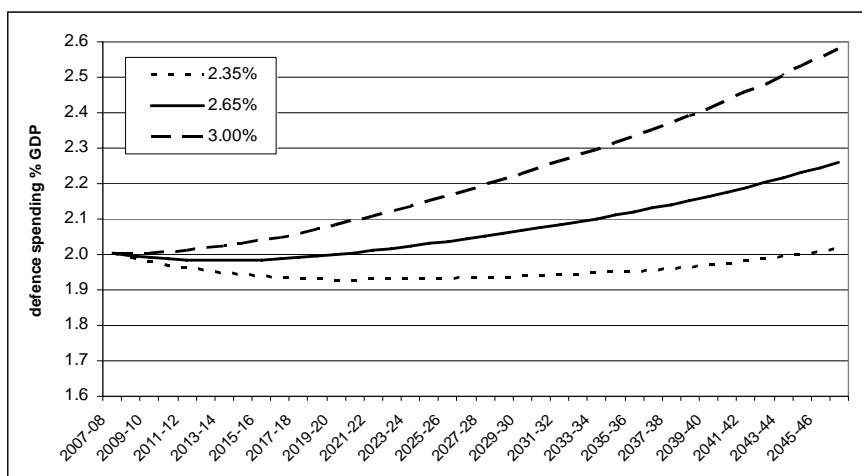
Fiscal limits – the longer term

The IGR projects that, in the absence of policy changes, the fiscal balance will go negative around 2020 and steadily deteriorate to minus 3.4% by mid-century (Figure 7.1) creating a problem for future governments.

The IGR assumes that defence spending grows at a rate of around 2.35% above inflation over the long-term, which translates into roughly the same share of GDP in forty years time as today. More pessimistic projections are possible. An ASPI analysis in 2003 estimated that maintaining an ADF of broadly the size and shape we have today would require spending growth of around 2.65% per annum. This assumed that capital costs grew by 4%, personnel costs by 2% and military equipment operating costs by 3.5% above inflation. Alternatively, the fifty year trend in Australian defence spending has been roughly 3% real growth per year. The defence burden implied by each of the growth rates is plotted in Figure 7.7.

Even for the most aggressive assumed rate of 3% per year, the end result is still a defence burden of less than 2.6% of GDP by 2050. It follows that, unless the scale of the defence force increases significantly, the most pessimistic estimate amounts to a significant but not overwhelming 0.6% of GDP of additional fiscal pressure above that already projected by the IGR.

Figure 7.7: Projected defence burden 2007–2047

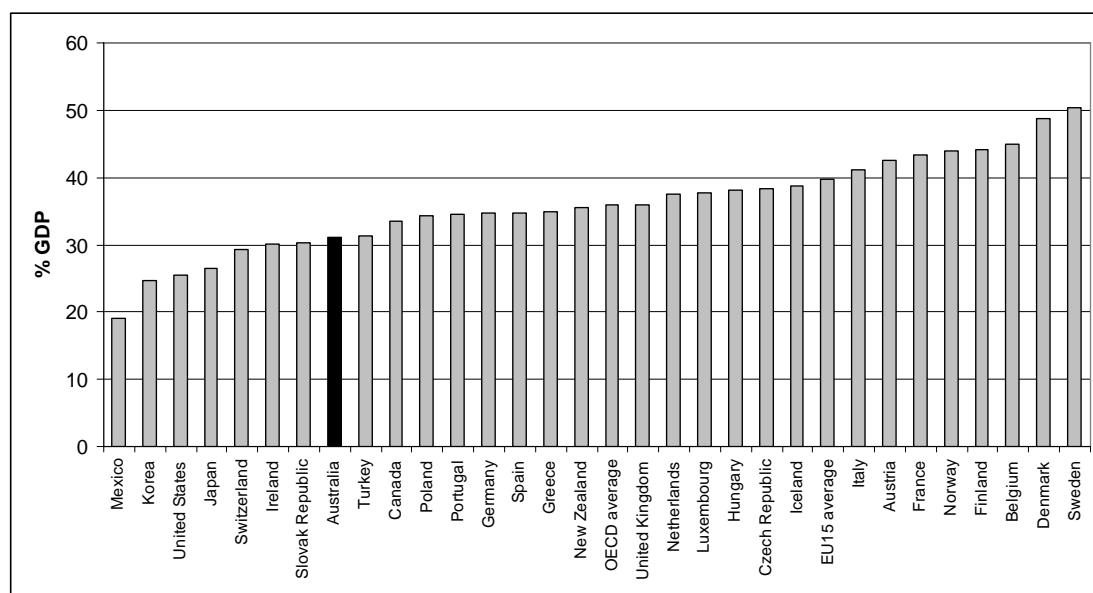


Source: ASPI estimate.

So how will future governments deal with a growing fiscal imbalance of between minus 3.4% and minus 4% of GDP? The IGR lists a series of non-exclusive options that current and future governments might pursue. These include policies to boost economic growth through higher workforce participation and productivity, reduced spending and/or more efficient delivery of government services and increased taxation.

There is little doubt that all three mechanisms will be employed to close the fiscal gap. It would simply be unsustainable to run an unending deficit by accumulating debt year after year. Fortunately, Australia has more room than most to accommodate increased spending through higher taxation. See Figure 7.8.

Figure 7.8: OECD Taxation as a percentage of GDP 2004



Source: OECD Factbook 2007.

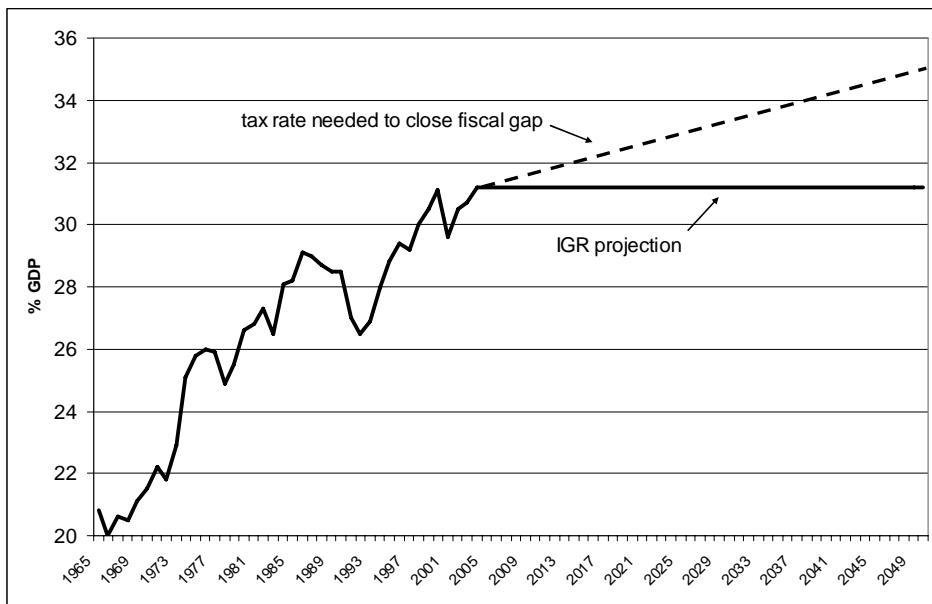
In fact, over the past forty years, the long-term trend in total taxation in Australia has been growing at about twice the rate that would be necessary to close the IGR gap (Figure 7.9). Note that Figure 7.9 includes tax at all levels of government, including the GST.

More generally, Australia is in a better position than most countries in the developed world to deal with the impact of ageing and rising health costs (a notable exception is the high-immigration, low social spending United States). Not only do we have relatively favourable demographics, but our self-funded superannuation arrangements remove a sizable impost that hangs over many European governments. The fiscal problem that we face is decidedly manageable.

While Defence can be expected to do its part in belt-tightening over the coming decades, the adjustments necessary to close the fiscal gap will occur slowly and incrementally. With no action taken at all, the total tax take as a percentage of GDP will grow substantially over the next forty years. For example, between 1979 and 2004, if no action had been taken, the level of taxation imposed by the Australian

government would have increased by 6.5% of GDP – more than enough to close the future shortfall.

Figure 7.9: Total Australian tax historical and projected



Source: OECD Factbook 2007 data tables.

Conclusion

Australia is a rich country with solid economic prospects. We can afford to spend more on Defence if we decide to do so. At worst, in the near-term we could face a tight fiscal situation that will see the government carefully managing a small post-election surplus. This would constrain but not prevent additional spending.

On past experience, Defence will ask for more money yet again. Over the next few years it might be harder to grant their requests than in the recent past, but by no means impossible. Surprisingly, on past experience, a recession would not necessarily make it harder to grant their requests, and could even make it easier, especially if the government of the day saw defence spending as a viable route to stimulate the economy.

In the longer-term, the slow adaptations necessary to find more money for health and aged-related spending will be made. Defence will have to play a role. Perhaps we'll finally see a renewed emphasis of efficiency – if so, that would be a good thing. But none of this portends a fiscal crisis or an economic crunch.

Sustaining a defence burden of around 2% of GDP (or even substantially higher) depends on one thing and one thing only: the government of the day's commitment to do so. So long as the electorate judges that the investment being made in defence is commensurate with the threats we face as a nation, the money will be found. The risk is that the post-9/11 perception of imminent threat will be replaced by a post-Iraq appreciation of the limits of military power. Couple this with yet another round of large cost increases, and the government's generosity to defence could quickly turn to impatience.

Workforce risk

As with financial risk, the risks associated with maintaining a military workforce of adequate strength are usefully divided into the near- and longer-term.

Near-term challenges

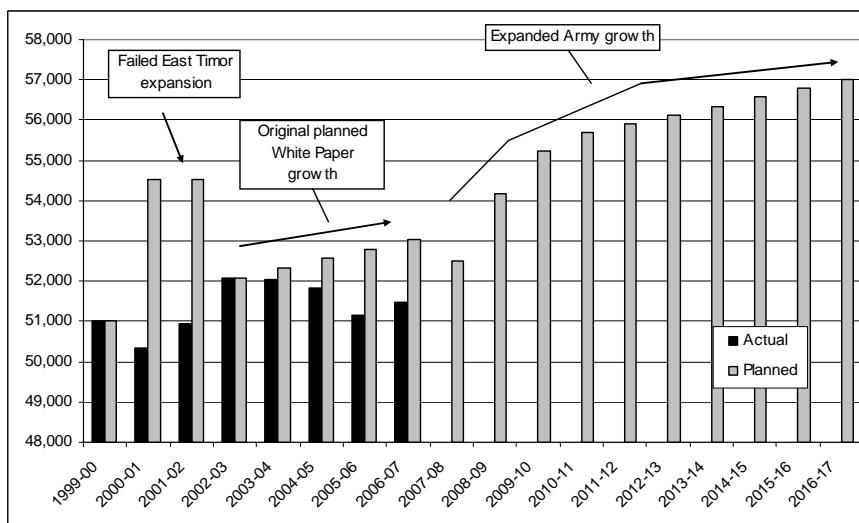
In late 1999 the government announced that it was going to expand the size of the defence force by 3,500 permanent people for two years to sustain operations in East Timor. Defence was funded to deliver this expansion, yet two years later the defence force was smaller by 95 personnel.

In the year 2000, the White Paper established a new goal of 54,000 full-time personnel for the year 2010. To achieve this, average growth of around 240 extra positions per year was required. Yet today, seven years later, the defence force has grown to only 51,476, representing a shortfall of around 1,600 positions compared with what would be required to deliver 54,000 with uniform growth following the peak ADF numbers reached in 2002-03.

Nonetheless, late last year the government announced a further expansion of Army that, along with several other recent initiatives, creates a new goal of a 57,000 strong defence force for the year 2016. (The target will grow to more than 58,000 once Stage-2 of the Enhanced Army Initiative is approved.) To achieve a strength of 57,000, average growth of close to 400 additional personnel per year is needed.

The planned year-by-year personnel strengths necessary to deliver the 57,000 end-state are set out in Figure 7.10 along with past goals and achievements. Note that the planned figures in Figure 7.10 are not year-by-year budget estimates set in anticipation of what can actually be achieved in the next year, but rather the progressive strengths needed to meet the medium term goals set for the ADF.

Figure 7.10: Planned and actual full-time military personnel strength



Source: Defence Budget Papers and ASPI estimates of planned personnel growth.

Somehow, the government retains faith that Defence can deliver the extra people despite persistent shortfalls. Let's hope that they are correct. Each year that Defence fails to close the gap between planned and actual personnel numbers, the more

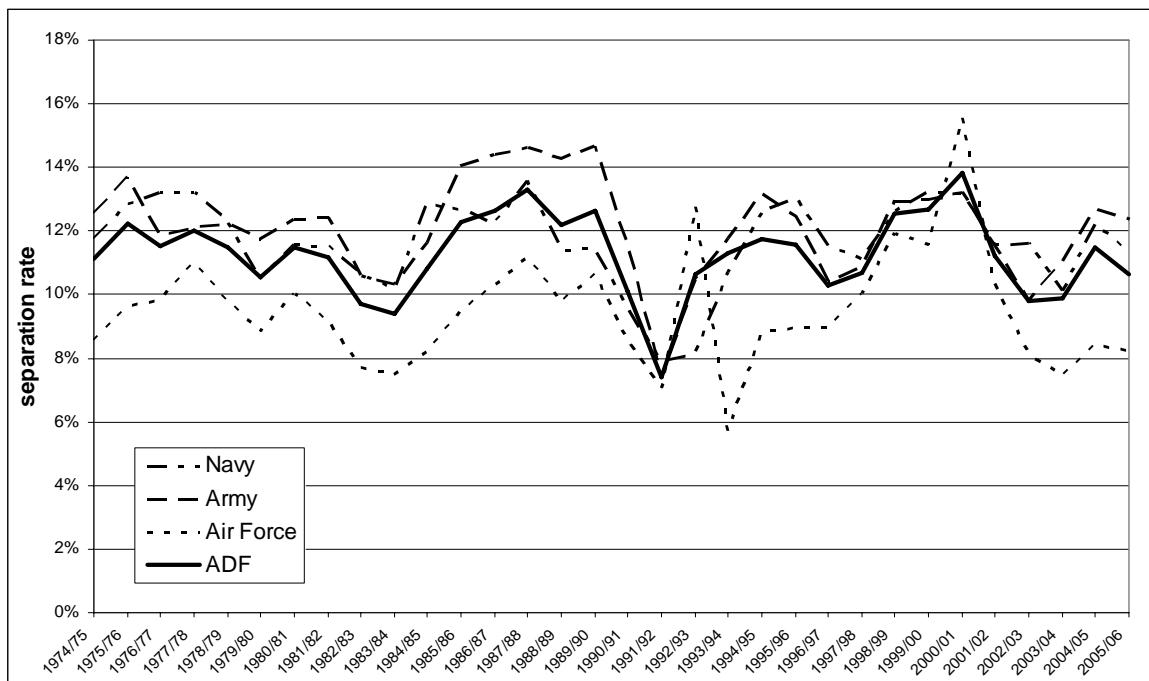
personnel numbers become a strategic vulnerability. There is little point investing billions of dollars in new equipment if we are not going to have adequate people to turn that equipment into effective combat capability.

The personnel problems facing Defence are as complex and diverse as the workforce itself. But in the final analysis, the problem reduces to the difference between Defence's recruitment of personnel and the rate at which they leave the organisation. Accordingly, we now turn to look at retention and recruitment before examining the government's approach and the prospects for improvement.

Retention

First the good news. In terms of total numbers the rates of separation from the permanent ADF and the three services are close to their thirty-two year averages. (See Figure 7.11.) The more severe oscillations reflect, to an extent, a response to changing levels of civil employment as shown in Figure 7.12. Interestingly, the correlation is most closely aligned with the *rate of change* of unemployment.

Figure 7.11: Annual separation rates for the ADF 1974-2006.



Source: Defence Annual Reports.

With the caution that some specific skill sets are experiencing much higher than average separation rates (submariners for example), the current situation is surprisingly good. Consider the following factors, each of which could be expected to place upward pressure on separation rates:

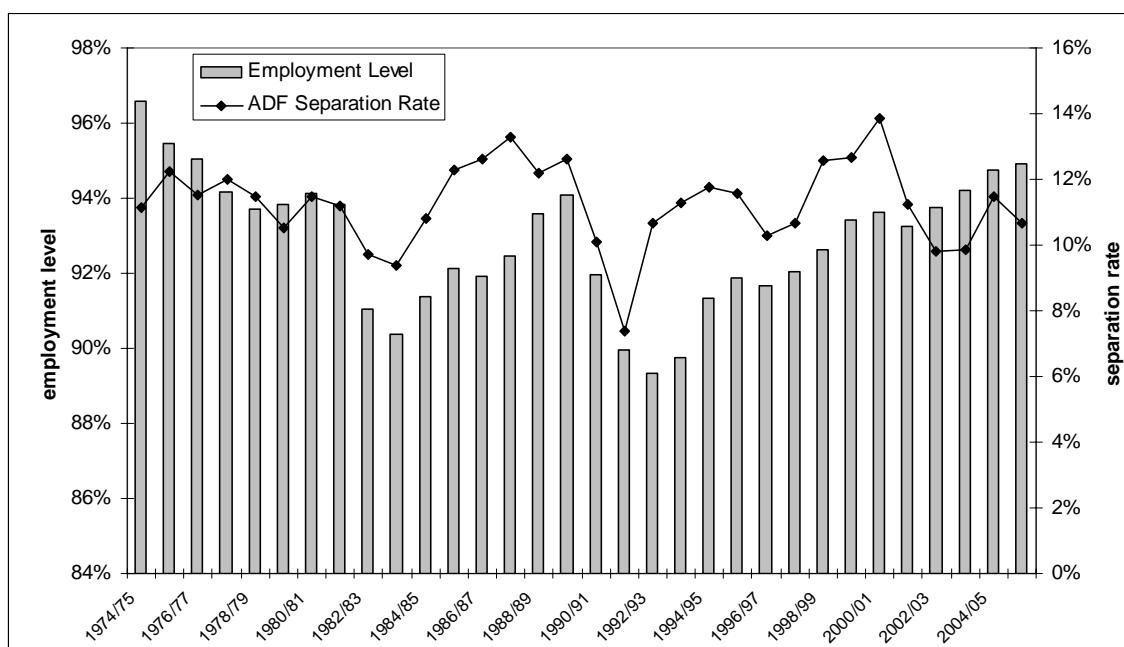
- Unemployment is at a 30-year low so Defence personnel have many more opportunities for alternative civil employment.
- Over the past thirty years, the ADF has become much more geographically spread due to the Army's move north and the adoption of two-ocean fleet

basing. These shifts exacerbate the dislocation caused by periodic posting of personnel.

- Female workforce participation has grown and along with it the number of dual-income households. This further increases the financial and personal cost of relocations
- There have been extensive and unpopular reforms of defence.
- Average Australian salaries have grown faster than in the ADF due, most likely, to the changing composition of the civil workforce (see Section 2.4 of this brief)
- The general move away from ‘jobs for life’ to shorter careers.
- More frequent overseas deployments (though this might also act as an incentive to remain for some).

In light of these factors, the recent success with retention is a vindication of the ongoing initiatives to improve the conditions of service for military personnel. Nonetheless, serious problems remain with the retention of some skilled personnel who are in high demand in the broader economy. In early 2007 there were no-less than 33 employment categories considered to have reached a critical level, in part at least due to high separation rates.

Figure 7.12: Civil employment and separation rates 1974-2006

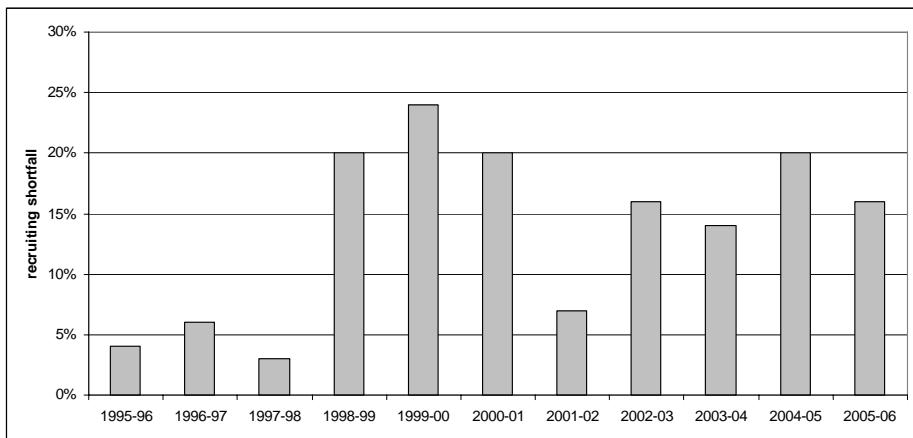


Source: Defence Annual Reports and ABS statistics.

Recruitment

If ADF retention is broadly okay, it follows that the problem must be one of recruitment. And indeed it is. Over the past decade, ADF permanent recruitment has fallen below target by an average of 15%. (See Figure 7.13.)

Figure 7.13: ADF recruiting shortfalls as a percentage of annual target

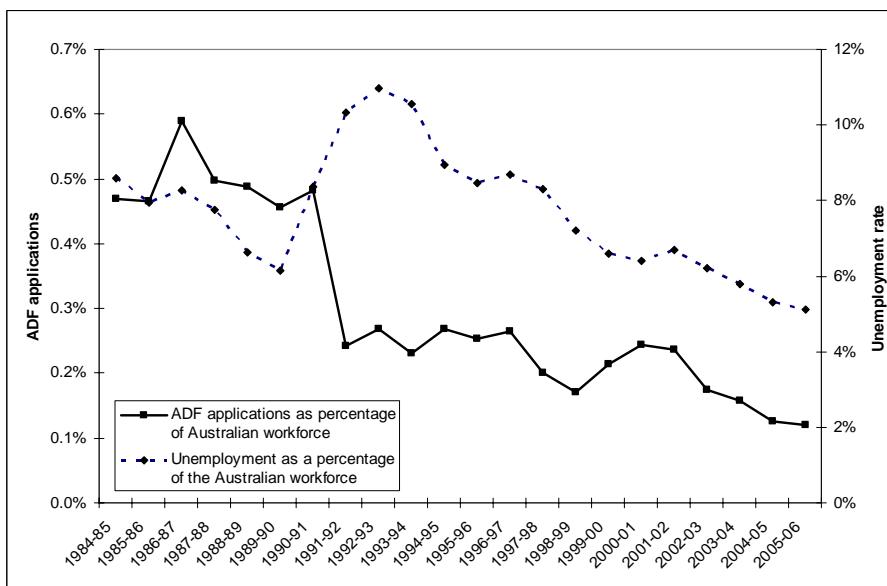


Source: Defence Annual Reports.

In recent years, at least, there's been a loose correlation between the level of unemployment and the rate of applicants for the ADF, as shown in Figure 7.14. More important, however, is the long-term adverse trend that's arisen independent of unemployment.

In the 1980s, the rate of applicants per capita was around twice that which arose in the 1990s for equivalent unemployment rates. The same is true for annual enquiries, which have fallen from around 2.5% of the workforce in the 1980s to around 1% in the 2000s.

Figure 7.14: ADF full-time applications and unemployment



Source: Defence Annual Reports.

There are several possible explanations for the long-term decline in people wanting to join the ADF:

- Participation in education by young people has increased substantially in recent years. Between 1994 and 2004 the percentage of those aged 20–24 years undertaking education increased from 26.6% to 37.7% while the

percentage of those aged 15–24 in higher education rose from 14.7% to 19.3%. (Source: ABS, *Measures of a knowledge-based economy, Australia, 2003*.)

- The greater prevalence of better-paying civilian jobs due to the development of a higher-skilled, service-orientated economy.
- An overall lift in prosperity that allows greater opportunity for exciting experiences in civilian life.
- Differing expectations of young people brought up in generation-x and generation-y cultures.
- A failure to match the branding and agile recruitment practices of competing employers.
- Adverse publicity surrounding the ADF, particularly concerning its ‘duty of care’ to military personnel.

The government’s response – will it work?

The 2000 White Paper recognised the critical importance of personnel to military capability and allocated \$500 million over five years to address priority ‘people’ initiatives. Aside from \$30 million for cadets and \$2 million for recruitment advertising, the money was directed to improved support and conditions for serving members, i.e. most of the money was directed to enhance retention. This seems to have been successful given the retention rates in recent years. In the 2004-05 budget, \$458 million was provided over four years for improved conditions for personnel.

Last year, a further \$320 million was provided for personnel in the budget, followed by the announcement of a billion dollar decade-long package designed to improve recruitment and boost retention. This budget saw another \$2.1 billion allocated to recruitment and retention across the forthcoming decade.

Table 7.4 lists the initiatives over the past seven years divided as best we can into broad categories useful for discussion. Some initiatives were funded from within existing funding while others were funded as new budget measures.

Table 7.4: Personnel initiatives 2000 to 2007

	Improved support, conditions and general retention (\$m)	Targeted retention (\$m)	Recruitment (\$m)	Reserves (\$m)
2000 White Paper (over five years)	398		2	70
2004-05 Budget (over four years)	458			
2006-07 Budget (over four years)	17	96	25	182
2006 R&R Reform (over ten years)		326	*677	
2007-08 Budget (over four years)	1536	12	524	

Source: Defence Budget Papers and Annual Reports. * Includes \$306 million for ‘gap year’ initiative.

On the surface, the very large investment in improving support, conditions of service and retention seems out of place given that retention remains around the thirty-year average. But unless money is invested to maintain the overall attractiveness of

military service relative to increasingly attractive civilian options, the present situation will surely deteriorate. Moreover, in absolute terms, the accumulated increase of roughly \$350 million per annum over seven years is a small part of the roughly \$7 billion per annum spent on military personnel expenses. That said, in the near term it is probably not as cost-effective an investment as that in targeted retention incentives or reform of recruiting.

Indeed, the money spent on targeted retention initiatives makes very good sense. With strong competition for skilled personnel in the economy, financial incentives have a role to play in encouraging people to continue in the ADF. By targeting incentives at specific areas, money can be spent more effectively than through broad workforce-wide remuneration increases.

But it's the money directed towards recruitment that is likely to deliver the most benefit. There is much to be fixed in recruiting. The 2006 Ministerial directed review of defence force recruiting and retention¹ identified the following problems:

- inadequate governance and coordination of recruitment activities
- unreasonably slow and drawn-out recruitment processes
- a 'gate keeper' mentality at the expense of selling Defence careers
- a dwindling advertising budget and resulting lack of market penetration

The additional funds made available to reform defence recruiting should go a long way to addressing these issues, although the problems of governance and coordination demand active management more than money.

Beyond that is the challenge of sending the right message to a new generation of recruits through advertising. To do so will require an understanding of the aspirations and motivations of potential recruits.

In recent years we've seen a series of very professional advertising campaigns for defence force recruitment. How successful they would have been had more money been available to gain a wider audience is impossible to judge. There have been advertisements touting high initial pay, educational and apprenticeship opportunities, HECS-free university degrees, leadership training, humanitarian good works and the opportunity to make critical decisions under pressure. Most recently, the focus has widened to embrace 'values' and the ANZAC heritage. It seems that everything is being tried short of directly offering young Australians the opportunity to fight for their country. (It might be worth a try some time.)

Whatever the best approaches might be (there could be several), the decidedly modest scale of Defence recruiting suggests that a solution to the recruiting shortfall should be possible. Each year the ADF needs to recruit around 5,000 to 6,000 people into the permanent force. There are currently more than 2 million people resident in Australia between the ages of 18 and 25, and each year more than a quarter million newly

¹ Although the report was not released, these issues have been discussed in public by the Minister and Defence officials. The author was a member of the review team.

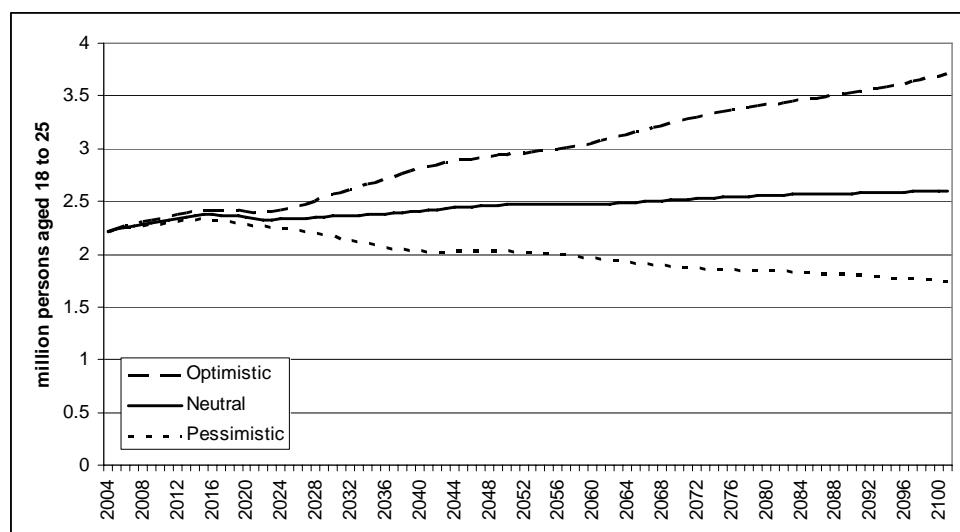
minted adults enter the cohort. Viewed this way, the impost on the national workforce due to ADF recruiting is minuscule. The underlying demographic reality provides no excuses for the continued failure to raise adequate numbers of defence force personnel. Defence now have the money and mandate to grow the size of the ADF, there should be nothing to stop them.

Long-term challenges

Prevailing wisdom holds that an ageing population will starve the defence force of adequate numbers of young recruits. While this idea or some variation on it is in common vogue, it is difficult to reconcile with the facts.

Australia does have an ageing population; over the coming decades the ratio of older to younger people will certainly grow. But the driver will be a growing number of older people rather than a significant fall in the number of younger ones. As Figure 7.15 shows, of the three projections issued by the ABS for the Australian population, at no point between now and the middle of the century does the number of residents in the prime recruiting age group of 18 to 25 year olds fall below 2 million. Whatever the problems Defence faces today with recruitment, demographics are not the issue.

Figure 7.15: Potential ADF recruits 2004 -2054



Source: Defence Annual Reports.

Conclusion

Over the past six months the government has moved decisively to redress problems that have been compromising the growth of the ADF for half a decade. Given the revised goal of growing the size of the permanent ADF to at least 57,000 in a decade's time (and hopefully to in excess of 58,000) they appear confident that the initiatives will work.

With more than \$3.1 billion allocated across the decade, the prospects look better than they have at any time since the release of the White Paper. But the response of potential recruits in a buoyant economy remains uncertain, as does the ability of Defence to fix a recruiting system they allowed to languish despite repeated failures to meet targets. Unfortunately, money cannot buy a sense of urgency.

Capital Equipment Delivery Risk

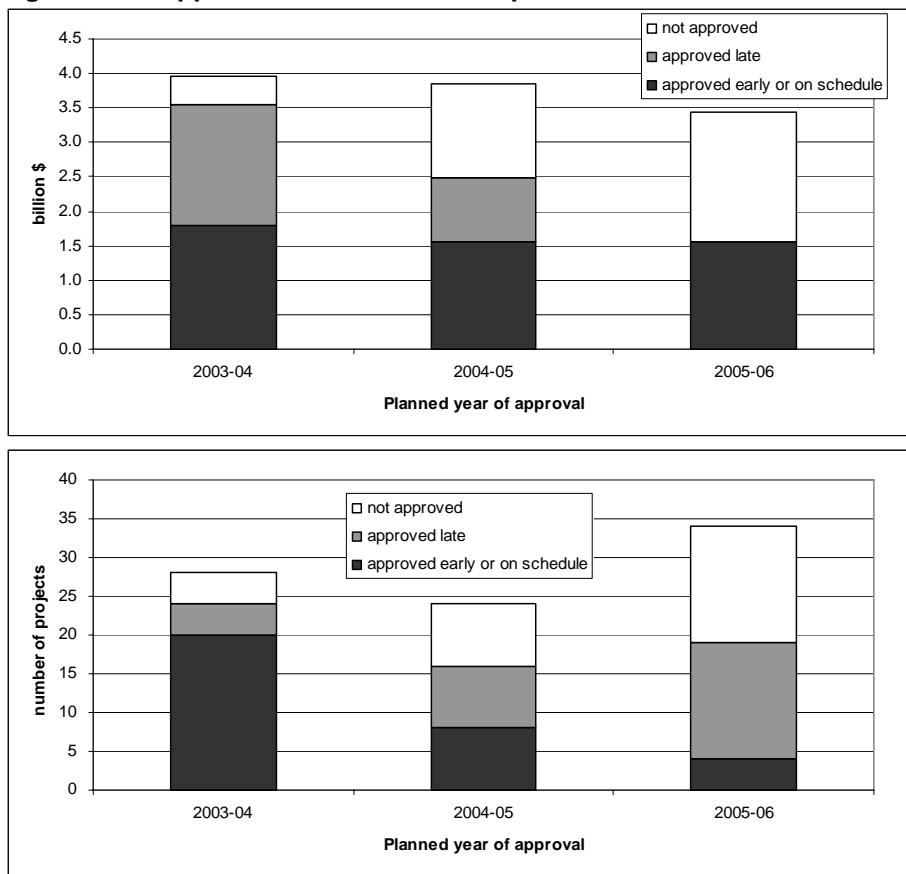
Acquiring new equipment for the ADF involves a two-stage process. Step one is the development of proposals for government approval by the so-called ‘Capability Executive’ within Defence and their eventual approval by the National Security Committee (NSC) of Cabinet. Step two is the physical delivery of new equipment by the Defence Materiel Organisation (DMO). Both steps are essential, and both carry risks. We examine these two steps in turn.

The pre-approval process – the Defence Capability Plan

The 2001-2010 Defence Capability Plan (DCP-2001) outlined the government’s major capital equipment investment plans for the coming decade as decided at the time of the 2000 White Paper. It was originally planned that the DCP would undergo annual revisions to take account of new information and changing strategic priorities. But it was not until February 2004 that the first full revision of the plan was publicly released. The resulting plan, DCP-2004, reflected the detailed decisions taken by the government in the Defence Capability Review (DCR) in late 2003.

DCP-2004 was replaced by a new version, DCP-2006, in the middle of last year. Regrettably, up until that point in time, the progress in approving projects in DCP-2004 had fallen well behind schedule. (See Figure 7.16.) The original DCP-2001 suffered similar delays before it was superseded.

Figure 7.16: Approvals from DCP-2004 up to 30 June 2006 – cost and number



Source: 2004 DCP, DAR and Budget Papers

In the transition from DCP-2004 to DCP-2006; 24 new projects valued at \$7.4 billion were added, and 76 existing projects valued at \$48.9 billion were carried forward. Of those projects carried forward, the aggregate cost increase was only 2 per cent but the average slippage (delay) was around 12 months.

The 2006 version of the Defence Capability Plan DCP-2006 was an opportunity to get things back on track by building on the experience of DCP-2001 and DCP-2004. But it was not a case of third time lucky as Table 7.5 shows.

Table 7.5: Approvals from DCP-2006 actual and planned for 2007-08

Project Number	Project Title	\$m	Status
2005-06 Projects			
AIR 5376 Ph 3.2C	Hornet Structural State 2 (additional)	600-750	approved in 06/07
JP2068 Ph 2B	Computer Network Defence	30-50	delayed to 06/07
JP 2069 Ph 1B	High Grade Crypto - Secure Telephony	0-20	approved in 06/07
JP 2077 Ph 2B	Improved Logistics Information Systems	150-200	approved in 06/07
JP 2080 Ph 2B	Defence Management Systems	50-75	delayed to 06/07 & 07/08
JP 8001 Ph 2C	HQ JOC - alternative HQ	0-20	on hold
2006-07 Projects			
AIR 5276 Ph 8B	AP-3C ESM - acquisition	75-100	approved on time
AIR 5276 CAP 1	AP-3C Capability Assurance Program	20-30	partially approved
AIR 5376 Ph 2.3C	F/A-18 EWSP - Jammers	50-75	on track for 06/07
JP 126 Ph 2	Joint Theatre Distribution System	100-150	delayed to 07/08
JP 2030 Ph 8	ADF Joint Command Support Environment	250-350	to be improved in stages
JP 2048 Ph 4A/4B	Amphibious Ships	1500-2000	delayed to 07/08
JP 2089 Ph 2	Tactical Information Exchange Domain	100-150	delayed to 07/08
JP 2090 Ph 1C	Combined Information Environment	30-50	delayed to 08/09
LAND 58 Ph 3	Weapon Locating Radar LOTE	30-50	approved on time
LAND 121 Ph 3A	Overlander - Field Vehicles & Trailers	450-600	delayed to 07/08
LAND 125 Ph 3	Soldier Enhancements Version 2	450-600	delayed to 07/08
SEA 1428 Ph 4	Evolved Sea Sparrow Missiles	75-100	approved on time
SEA 4000 Ph 3	Air Warfare Destroyer	4500-6000	delayed to 07/08
2007-08 Projects			
AIR 5405 Ph 1	Replace Mobile Regional Ops Centre	75-100	1 st pass only in 08/09
AIR 5431 Ph 1	Future Air Traffic Control Systems	50-75	moved to 10/11 (LOTE)
AIR 7000 Ph 1B	Multi-mission UAV	1000-1500	on track for 07/08
AIR 8000 Ph 2	Battlefield Airlifter	250-350	1 st pass only in 07/08
AIR 9000 Ph 7A	Navy Helicopter Training System	250-350	delayed to 08/09
JP 2008 Ph 3F	Military Satellite Capability	50-75	on track 07/08
JP 2044 Ph 3A	Project Eagle Eye	50-75	on track 07/08
JP 2065 Ph 2	Integrated Broadcast System	30-50	moved to 08/09
JP 2072 Ph 2	Battlespace Communications System	450-600	1 st pass only in 07/08
JP 2077 Ph 2D	Improved Logistics Information Systems	350-450	moved to 08/09
JP 2085 Ph 2	Explosive Ordnance Warstock	250-350	on track 07/08
JP2097 Ph 1	REDFIN - SF Capability Enhancements	350-450	on track 07/08
JP 2099 Ph 1	ID Management	75-100	delayed to 08/09
JP 5408 Ph 3	ADF Navigation Warfare Capability	50-75	moved to 08/09
LAND 40 Ph 2	Direct Fire Support Weapon	150-200	on track 07/08
LAND 75 Ph 3.4	Battlefield Command Support System	75-100	on track 07/08
LAND 144 Ph 1	Counter Mine Capability	20-30	on track 07/08
LAND 146 Ph 2	Combat ID for Land Forces	100-150	moved to 08/09

Source: 2006 DCP, 2005-06 DAR and 2007-08 PBS.

Hopefully, under the Kinnaird regime, many of the projects that are presently delayed will nonetheless have preparatory work underway as part of the pre-approval process. In the case of the Air Warfare Destroyer, for example, a large amount has been accomplished despite second pass having not been granted. In this way, many of the capabilities may eventually find their way into service more quickly than Table 7.5 implies. Nonetheless, the systematic trend is for approvals to occur later than initially planned.

What's the problem?

There are at least four reasons why the approval of DCP-2006 projects has slowed: First, the approval of previously unplanned projects may have displaced those in the DCP (notwithstanding that DCP-2006 is less than twelve months old). But while there have been some additional projects approved, most of these – the Super Hornet and Expanded Land Force for example – are being funded separately.

Second, it may be that there is insufficient money to commence new projects. If there is a shortage of money, it could reflect a failure to properly anticipate project cash flow coupled with escalation in the cost of individual projects. However, as we discuss later, this seems unlikely given that Defence continues to hand unspent investment funds back to the Treasury.

Third, it might just be that the new two-pass process has become too unwieldy and that delays are mounting as the bottleneck of NSC approval constricts. While this is possible, the experience with DCP-2004 should have taught Defence's planners to anticipate the time taken to navigate the hurdles.

Fourth, the approval of projects might be delayed because DMO and/or industry do not have the ability to deliver. There is some evidence of this in the recent performance of approved projects, which we now turn to examine.

The post-approval process – the DMO and industry

Delivering the acquisition program in the 2000 White Paper was never going to be easy given the appreciable year-on-year increases to investment demanded. Add to this the several ad-hoc (and separately funded) projects like the C-17, Super Hornet and Army expansion, and you get a veritable mountain of new investment to be climbed.

The first sign that there was going to be trouble was in 2002-03, when \$200 million of investment funds went unspent. In subsequent years, there have been additions and subtractions as optimism and reality have alternatively prevailed. Only last year, \$643 million of previously deferred funds were brought forward. Most recently, however, the trend has been to defer planned investment spending. (See Table 7.6.)

Table 7.6: Recent investment deferrals (\$m)

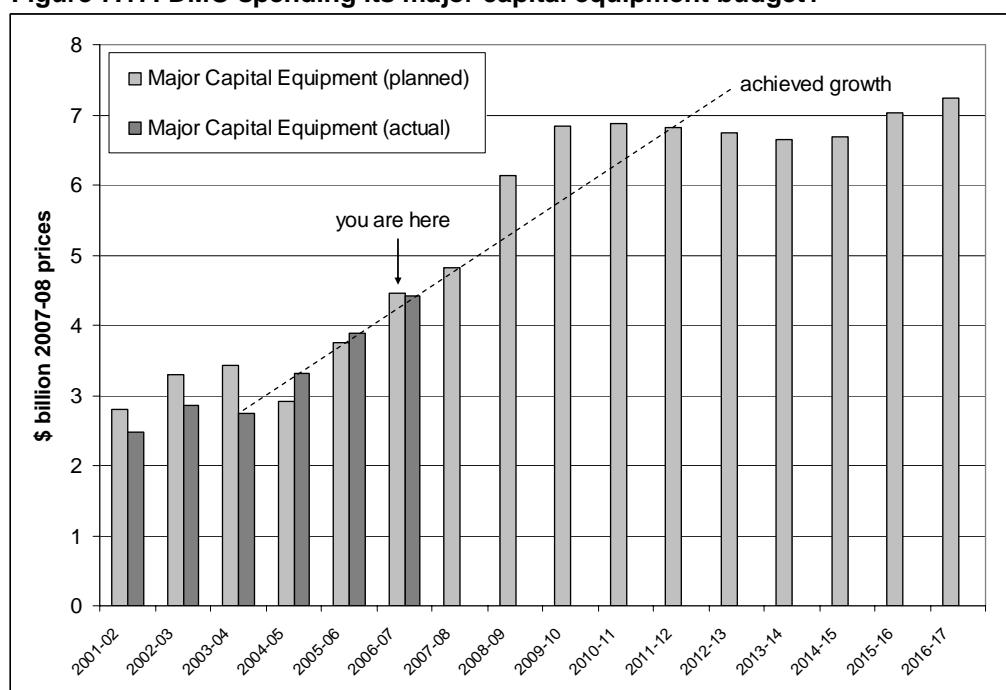
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
2006-07 PAES	-390	114	294					
2007-08 pre- ERC		-622		636				
2007-08 PBS		-382	-232	-564	38	194	545	384

Source: 2007-08 PBS

In total, around \$2.2 billion of planned spending has been delayed in a little less than six months. Aside from inevitably delaying the delivery of capability, these deferrals have the effect of piling up planned investment for the future. The mountain gets steeper. It's important to note that the most recent line of deferrals in Table 6.7 includes \$510 million of unapproved capital equipment in addition to \$766 million of approved projects [PBS Table 69].

The struggle to deliver the increased rate of investment can be seen in Figure 7.17 where funds have been underspent in four out of the last six years. Note that the strong performance in 2005-06 was due to an early (and previously unanticipated) \$977 million dollar initial payment for the C-17 aircraft. Similarly, the seemingly favourable projected result for 2006-07 is due more to price and exchange movements given that \$390 million was deferred from the budget in the PAES.

Figure 7.17: DMO spending its major capital equipment budget?



Source: Defence Annual Reports and 2006-07 PBS

Of course, what's most apparent from Figure 7.17, is the precipitous rise in spending from 2008-09 onwards. While some of this money is due to 'off the shelf' acquisitions like the C-17 and Super Hornets that can (hopefully) be expected to proceed to schedule, much is not. In particular, the initial work on the massive Air Warfare Destroyer project will occur in this period. Naively extrapolating the recently achieved rate of growth reveals that around \$3 billion of investment over three years falls above the trend line. This is not encouraging.

The challenge of delivering the growing volume of planned investment will be further exacerbated by the economy-wide skills shortage we are experiencing. Many of the high-end project management and technical skills that are needed – by both DMO and local defence industry – are in strong demand due to the ongoing resources boom. And, to make matters worse, there is a compounding mechanism at play. As new

equipment being purchased enters service over the next several years, there will be further demand for skilled people to maintain the new platforms.

Of course, the delays in the approved investment program are not entirely a product of the shortage of skilled personnel locally. Many other factors are at play, including delays in the acquisition process at both the pre- and post-approval stage. Perhaps the biggest culprit is the willingness by firms to promise what they cannot deliver – like AEW&C, HF-modernisation, M-113 Upgrade, FFG upgrade and Air Defence Radar, to name but a few – coupled with an unhealthy appetite for unique (and therefore risky) capabilities by the ADF.

How do we fix it?

The problems with delivering the equipment planned for the ADF are many and varied, and no single action is likely to solve the problem. Instead a multi-faceted approach is needed.

To the extent that detailed NSC consideration of defence projects is the cause of delays in the pre-approval process, it must be asked: is the committee engaging at the right level? While NSC needs to be fundamentally engaged in all strategic level acquisition decisions – and especially in making the critical judgements about the balance of risk, cost and benefit – some issues need to be delegated else the machinery of government grind to a halt. Perhaps it's time to reconsider the practicality of present arrangements.

To the extent that Defence is unable to adequately prepare proposals for NSC to consider, we need to look at the staffing of the Capability Executive. Not simply to ask if they have adequate resources, though that needs to be done, but to see if a cadre of career professionals is needed to work alongside the military officers cyclically (and temporarily) posted into the organisation. Certainly no major financial institution would try to run a multi-billion dollar investment program with short-term seconded ADF officers as the core of their workforce. If DMO is being professionalised, why not those tasked with preparing the proposals for acquisitions?

As far as the skill shortage goes, there is already a defence-specific program in place (SADI). No doubt it is making a difference in some defence-specific areas. More generally, however, it's a bit like trying to fill up a bucket that's connected by a hose to an empty swimming pool. The skills shortage is a national problem that will only be solved through economy-wide training and education initiatives, and then only slowly.

There is one sure fire way to circumvent a shortage of labour – by spending more than those you are competing with. Mining companies are not paying top dollar because they want to share the joy of the resources boom with their workers. If Defence were willing to pay more for the capability it buys, suppliers would be able to compete for the best and brightest to deliver projects. The same is true for the Defence and DMO workforce. This is an expensive and unattractive option. It would probably demand a move to open-ended ‘cost plus’ contracts coupled with a heavy does of regulation from DMO to ensure that value-for-money was not abandoned. While feasible, this is hardly an attractive option.

Finally, if the government really wants to get capability delivered on time, the simplest thing to do is to repeat what they are doing with the C-17 and Super Hornet purchases: buy off the shelf equipment that is already in service and has an established production line and support chain. Not only would this ensure timely delivery at known cost, but it would drastically reduce the cost of supporting customised Australian-unique equipment.

Of course, we could just muddle on and accept that equipment will be delivered years late. But if we can afford to do that, we should be asking ourselves some hard questions about why we are spending so many billion taxpayer dollars in the first place.

SECTION 8 – TOP 20 PROJECTS 2007

Compiled by:

Gregor Ferguson

Tom Muir

Editor and senior writers of Australian Defence Magazine

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2 CRU / 3 CRU Replacement (AIR 5333 Vigilare)

Project Vigilare will replace the RAAF's ageing air defence command and control system. This is embodied in two Control and Reporting Units (CRUs) located at RAAF Bases Tindal (2CRU) and Williamtown (3CRU). These form the heart of the ADF's Northern and Eastern Regional Operations Centres (NORTHROC and EASTROC respectively).

The introduction of the Vigilare system, along with the introduction of the Wedgetail AEW&C system and the RAAF's fleet of new KC-30B aerial refuelling tankers, is critical to the maintenance of Australia's regional air dominance. These interlocking elements will underpin the RAAF's Super Hornets and upgraded 'classic' Hornet fighters pending the probable introduction of the F-35A Joint Strike Fighter during the next decade, and will then support the F-35A in a fully network-enabled air combat force through to the middle of this century.

As well as replacing obsolete processors, displays and communications equipment, Project Vigilare will also enable 2CRU and 3CRU to receive and process sensor data from JORN, the Wedgetail AEW&C aircraft scheduled to enter service in 2009, new civil and military air traffic control radars and the Navy's planned Air Warfare Destroyers. The upgraded CRUs will fuse this sensor data with intelligence information from a variety of sources to help compile the ADF's Recognised Air Picture (RAP) across Australia's area of interest, which stretches from the mid-Indian Ocean to the western Pacific.

The Vigilare system is designed to meet three functional requirements:

- Surveillance, and the concomitant capability to interface to a wide variety of sensors and agencies and correlate, track and display target data,
- Battlespace management, which in turn requires high fidelity communications including satellite and Tactical Data Links (TADIL),
- Training: operators need to be able both to simulate air defence operations and record and play back real operations for subsequent analysis and instruction.

The Vigilare system must also be capable of interfacing with new sensors, TADILs and other defence and government agencies as they come on line, including agencies using legacy data and communications formats and protocols.

Boeing Australia Ltd (BAL) signed the Vigilare prime contract, worth \$129.6 million at January 2006 prices, on 1 March 2004. The company also signed a five-year Logistics Support Contract worth \$11.395 million (base date) over the period.

The Preliminary Design Review (PDR) for Vigilare was completed in August 2005, some five months later than planned. The Critical Design Review (CDR), originally scheduled for December 2005, is now expected to take place in late 2007. However, seven of the nine sub-system CDRs had been completed successfully by February 2007.

Final delivery of Vigilare was originally expected within 45 months of contract signature, in December 2007. The delayed CDR will see this initial delivery being pushed back into 2009. The exact schedule has not yet been finalised – concern over schedule slippage, among other issues, led to a number of Non-Advocate Reviews of the project in early-2007, one of them specifically addressing its schedule. The current expectation is that there will be a 36-month slippage, but Defence and BAL are looking for ways to recover some of this.

Vigilare has been blighted by delays since its inception. ADI Ltd signed a \$30 million prime contract as long ago as 1993 but this was terminated and the project re-scope to include

enhanced functionality and a Link 16 TADIL capability. The project was re-tendered in 1996, BAL was named preferred tenderer in 1998 but it took a further six years before BAL and the DMO could sign a contract worth over four times the original amount, due largely to enlarged scope.

There are several reasons for the delay. One was BAL's original plan to use the processors and displays from its American parent company's Wedgetail AEW&C aircraft in order to provide a common human-machine interface, software, training and support regime. The cumbersome US defence export licensing regime caused significant delay and eventually rendered the Wedgetail-Vigilare synergies unattractive.

Meanwhile, a separate project, Air 5333 Phase 2, to provide the external communications links for the Vigilare system was cancelled and its scope absorbed by the Vigilare program.

As a result, BAL and Defence undertook a Pre-Contract Systems Requirements Analysis (PCSRA) to develop a detailed joint understanding of the requirements of the project, the associated technology demands and the considerable levels of risk – and how best to mitigate and assign them. These studies also delayed prime contract signature.

Two of the key areas of risk for Project Air 5333 are communications and data fusion. Vigilare involves some 250 separate interfaces with other systems, such as JORN and Wedgetail. The PCSRA addressed the many interfaces between the CRUs and the sensors feeding into them and the establishment of a robust communications system to link these operational elements. It also contributed to a detailed and highly complex Operational Concept Document (OCD) to ensure that BAL and the RAAF had a clear understanding of the system-level design of the RAAF's emerging surveillance and air space control organisation before contract signature.

Faced with these delays, Defence carried out two interim upgrades of 2 and 3 CRU. Adelaide-based Daromont Technologies installed US firm Raytheon Solipsys' Multi-Source Correlator/Tracker (MSCT) and Tactical Display Framework (TDF) to generate a correlated air picture from the various sensor inputs to the CRUs. This interim solution was fully implemented in 2004 and was highly successful - to the extent that it is now part of the final Vigilare solution.

Under the original schedule, the upgraded NORTHROC facility was to be commissioned at Tindal in March 2007 but it is now unlikely that work will begin there until early 2008. Under the current plan the EASTROC facility at Williamtown cannot be de-commissioned and upgraded until NORTHROC is commissioned. So, while the Tindal upgrade is expected to be completed in 2009, the final completion of the Williamtown upgrade is not expected until 2010.

However, these delays will not result in equipment or configuration changes as a result of equipment obsolescence and the interim upgrade included some capacity for growth to cope with potential project delays. As a result, there has been no degradation of capability.

The delays suffered by Project Air 5333 to a great extent reflect the sheer complexity of the project, particularly the many different types of interface and the 250 actual communications links involved. Apart from the external interface stability, the internal functionality requirements are extensive and require significant software development by the contractor. Much of this software development was under-estimated by the contractor. This complexity makes it vulnerable to delays caused by even minor technical problems.

The Commonwealth and BAL have both also experienced difficulties recruiting suitably qualified staff to man the project due to the current engineering skills shortage in Australia. However, both now report they have strong teams in place to move the project forward.

Additional Trooplift Helicopter (AIR 9000 Phase 2, 4 & 6)

AIR 9000 is a multiphase program to consolidate and reduce the number of helicopter fleets operated by the Australian Defence Force (ADF). It is also intended to stimulate investment in a sustainable aerospace industry base to support the ADF's rotary wing capabilities.

Under Phase 2, an acquisition contract was signed with Australian Aerospace on 2 June 2005 for 12 MRH 90 multi-role trooplift helicopters based on the European NH 90 helicopter, together with associated support systems to provide extra mobility for land forces on operations. When completed, the project will have enhanced the ADF's capability in air mobile operations and special mission roles. Trooplift helicopter operations from HMA Ships Manoora and Kanimbla will also be enhanced.

A contractual agreement between the Defence Materiel Organisation (DMO) and Australian Aerospace was signed on 30 June 2006 for the supply of 34 additional MRH 90 medium lift helicopters, comprising 28 to replace the Army's 35 Black Hawks under Phase 4 and six more to replace the Navy's six Agusta Westland Sea Kings under Phase 6. Both parties also signed the associated 10-year support contract.

The MRH 90 selected to replace the Sea King under Phase 6 is the same variant acquired under Phases 2 and 4. The configuration differences that deliver maximum capability against the full range of Navy operations will need to be judged against the benefits of a common fleet in terms of Through Life Support (TLS) costs and streamlined training. This acquisition of a total of 46 MRH90 helicopters rationalises three separate utility and troop lift helicopter types down to just one. Australia is now the third largest customer for the NH90 family of helicopters, after Germany and Italy.

The Eurocopter MRH90 was selected as the Additional Trooplift Helicopter (ATH) in preference to a more modern version of Sikorsky's S-70A Black Hawk. It can carry 18 combat troops on shock rated seats, in a more versatile cabin layout than the smaller Black Hawk. A single wave of six aircraft will be able to carry an infantry rifle company ashore, with weapons and equipment, from one of the Navy's planned amphibious landing ships. That would not be possible with the same number of Black Hawks.

The MRH90 has a fatigue-resistant carbon fibre composite airframe. Its metal components are marinised to resist corrosion when operating off ships or over the sea. It is protected from heat-seeking missiles and other threats by an IFR exhaust suppression system and the same Electronic Warfare Self Protection (EWSP) systems that equip the Army's Tiger Armed Reconnaissance Helicopter.

The prime contractor is Eurocopter's Australian subsidiary, Australian Aerospace, which will assemble eight of the first twelve aircraft at its Brisbane facility under a \$901.6 million prime contract signed in June 2005. Australian Aerospace also signed a \$677 million contract for sustainment of the ATH fleet out to 2017. The first four ATH will be manufactured entirely in Marignane, France, with deliveries of the first two on schedule for mid-October 2007 to meet the ISD of 18 December 2007, with the next two to be delivered in mid-2008.

Development of the Ground Mission Management System, Software Support Facility and other project support elements was progressed during 2006. Assembly of the remaining 42 aircraft will commence in Brisbane from mid-2007 with the first Australian-assembled

helicopter to be delivered by December 2008 and the last by mid-2014. Located in Townsville, the MRH 90-equipped squadron will be operational by 2011.

Risks facing this project included the potential for schedule slippage in the German NH90 program because certification of Australia's MRH 90 is based on the German NH 90 TTH variant. Any slip in the German schedule would have therefore directly impacted certification of the MRH. However, NAHEMA qualification of the German NH 90 variant was achieved on schedule in March 2006 and German type certification was granted on December 1st, 2006, clearing the way for deliveries to the German Army and international customers. The German Army accepted the first three NH 90 Tactical Transport Helicopters on 13 December 2006.

The MRH 90 is essentially a Military-Off-The-Shelf (MOTS) purchase, with the exception of the communications suite, development of a compliant Variable Message Format (VMF) data link and modifications to the Internal Communications Systems (ICS). However, these are proven modifications in themselves and the associated technical risks are therefore assessed as only medium to low.

In particular, the MRH 90 communications suite is common with the Army's Tiger ARH, whose mission system architecture and software has high levels of commonality with the MRH 90. The VMF is an existing US Army data link, and the ICS system has already been developed for other nations procuring NH90. However, the time needed for VMF development and integration is slightly longer than the aircraft assembly time, so this capability will not be ready until early 2009.

The approved budget for AIR 9000 Phase 2 is \$3,358m, a substantial increase over the original approved budget of \$1,010m due to the incorporation of funding for Phases 4 and 6 covering the acquisition and support of an additional 34 MRH90 helicopters. Due to economies of scale however, the unit cost per helicopter has decreased by approximately 13%. The estimated cumulative spend to June 2006 is \$227m, with a further estimated spend of \$360m to June 2007 bringing the total to \$587m.

Australian Industry Involvement (AII)

One of the objectives of Project AIR 9000, in line with the DMO's Aerospace Industry Sector Plan, is to stimulate investment in the development of a sustainable Australian aerospace industry base able to support the ADF's rotary and fixed-wing aircraft fleets. The plan explicitly recognises that part of the key to achieving this is to support local industry efforts to become integrated into the global supply chains of overseas aerospace prime contractors.

In April 2006 Australian Aerospace announced it would invest some \$15 million to establish a state-of-the-art composite fibre manufacturing plant in Queensland, creating more than 60 new jobs at stable production levels. Due to come on stream in 2007, the new plant will initially produce fuselage parts and fittings for Australia's Tiger and MRH90 helicopters, as well as carrying out maintenance and repairs. The new facility will also manufacture parts for the global supply chain and worldwide production of the Tiger and the NH90.

Air Refuelling Capability (AIR 5402)

This project aims to replace the RAAF's current fleet of four ageing Boeing 707 tankers with five new KC-30B Multi-Role Tanker Transports (MRTT), which are based on the Airbus A330-200 airliner.

The new aircraft are scheduled to enter service at RAAF Base Amberley from 2009 and will be a key support to the RAAF's Air Combat Group. They will increase considerably the range

and endurance of the RAAF's upgraded Hornet fighters, its recently ordered Super Hornets and, eventually, the F-35A Joint Strike Fighters, which Defence is expected to order in 2008 under Project Air 6000 – New Air Combat Capability.

Along with the Wedgetail AEW&C system, the Vigilare air defence command and control system and the Joint Air-Surface Stand-Off Missile which is being acquired under Project Air 5418 and Joint Stand-Off Weapons being acquired with the Super Hornets, the new tankers will help the Hornet, Super Hornet and F-35A deliver the strategic strike capabilities currently provided by the RAAF's fleet of F-111s.

Unlike the RAAF's Boeing 707s, the KC-30B will be able to refuel all of Australia's current and planned combat aircraft and those of its allies, as well as the C-17, AEW&C and other KC-30Bs, making it a very versatile and sought-after asset. The KC-30B designation is quite recent and springs from the US Air Force's contest to find a new tanker – another variant of the Airbus A330-200, designated KC-30A, is a contender for this contract.

The RAAF selected the KC-30B in 2004 in preference to Boeing's KC-767. The approved cost of Project Air 5402 is \$1.777 billion at Jan 2007 prices. Spanish contractor EADS CASA signed the \$1.5 billion (at September 2003 prices) prime contract in December 2004. The first of the five aircraft is now being modified in Madrid and the remainder will be modified and fitted out in Australia by Qantas Defence Services Pty Ltd (QDS), who will also be responsible for in-service support.

The deliverables under this contract include the five modified aircraft, a full flight simulator, initial in-service support and the establishment of a Contractor Support Organisation in Australia. The planned in-service date - comprising delivery of two aircraft, completion of qualification testing and issue of the military airworthiness certificate - is late 2009.

The KC-30B is a large, twin-engined wide-body jet with a maximum take-off weight of 233 tonnes. Its standard wing tanks can carry up to 111 tonnes of fuel. While its fuel consumption is roughly the same as the Boeing 707, it carries some 45,000 litres more. It therefore requires no extra tanks to carry a militarily useful payload in the tanking role. Consequently, its uncluttered cargo bay can carry over 42 tonnes of cargo (depending on range and fuel load), consisting of both military and commercial air cargo pallets. It can carry up to 272 personnel, compared with 152 on the Boeing 707.

In this configuration, a single KC-30B would be able to refuel six Hornets in a non-stop flight from Darwin to Butterworth in Malaysia while carrying the detachment's ground crew and support equipment and spares.

The modifications necessary to convert the A330-200 into a tanker consist of under-wing refuelling pods similar to those currently used on the RAAF's Boeing 707, an Aerial Refuelling Boom System (ARBS) mounted on the lower rear fuselage, and the necessary pumps and piping between this and the aircraft fuel tanks.

The ARBS will be operated by remote control from a dedicated two-man control station adjacent to the flight deck. The aircraft will also be equipped with a suite of Electronic Warfare Self-Protection (EWSP) systems provided by US firm Northrop Grumman and military communications, navigation and data link systems provided by Thales and integrated by EADS CASA. The Critical Design Review was completed at the end of June 2006.

The pods are incremental developments of those currently in RAAF service with straightforward structural and fuel system modifications required within the aircraft wing to accommodate them. But the ARBS is an all-new system designed by EADS CASA for which the RAAF is launch customer, and its certification program is running approximately

12 months behind schedule, though this has not impacted on the delivery schedule of the completed aircraft.

The ARBS was scheduled to begin a 300-400 hour flight test program in August 2005, installed on a modified Airbus A310 airliner test bed. Minor supplier and engineering delays relating to the ageing A310 test bed saw the first flight pushed back to March 2006.

The flight test program has validated all the engineering projections so far. The ARBS flight trials will progressively expand the boom's flight envelope, validate its flight control laws and lead to 'dry' and then 'wet' contacts (the latter actually transferring fuel) with receiver aircraft throughout the remainder of 2007. This should result in successful qualification of the boom system and enable subsequent ARBS trials on the first KC-30B in 2008.

The first RAAF KC-30B was delivered to Madrid in June 2006 for installation of the underwing refuelling pods and the ARBS. It will make its maiden flight in this configuration in June 2007, with the aerial refuelling initially inoperable, to undertake civil certification. Its first flight with all refuelling systems operational is scheduled for early-mid 2008.

The KC-30B development and flight test schedule made allowance for delays such as those which have afflicted the ARBS. Contingency plans exist for parallel test and certification activities using both the A310 and KC-30B, if necessary, to achieve the RAAF's in-service date, but the contingency allowance built into the schedule is gradually being eroded.

The KC-30B flight test and certification program will be conducted by EADS CASA under the auspices of the European Aviation Safety Agency (EASA) and the Spanish Military Airworthiness Authority (INTA). This program will also form part of the Commonwealth's Type Acceptance Test and Evaluation Program. Final testing of the new tanker with RAAF receiver aircraft will be conducted in Australia in early to mid 2009.

Modification of the remaining four aircraft in Australia will commence in the third quarter of 2008 and take approximately seven months per aircraft.

Under a contract worth \$46 million, EADS CASA selected Canadian firm CAE Inc in March 2006 to supply a full flight and mission simulator for the KC-30B, a new training facility, and a mission systems trainer. The simulator will be delivered to Amberley in 2009. CAE has also signed an initial agreement directly with Defence to provide five years of support services for the training systems.

Schedule is important for both the RAAF and EADS CASA. For the RAAF, a robust aerial refuelling capability to support its upgraded Hornets is a necessary condition for the retirement, from 2010, of its ageing F-111 strike aircraft.

For EADS CASA, keeping to schedule is vital, not only to satisfy the RAAF but also to establish the company's credibility in the USA. There the KC-30A will be pitted against Boeing's KC-767 in the US Air Force's massive and strategically important multi-billion dollar tanker replacement program, for which tenders were called in early 2007.

Schedule risk remains an issue for this project; the main sources are the ARBS qualification program and the integration of military avionics into the commercial A330 aircraft. While not at the 'bleeding edge' of technology, both are complex engineering development activities carrying inherent risks which Defence and EADS CASA are addressing through their systems engineering development processes.

Australian Industry Involvement (AII)

The AII goal for Project Air 5402 was for local content and Strategic Industry Development

Activities (SIDA) amounting to 10 per cent of the prime contract value. This seemingly low level is explained by much of the prime contract value being in the A330-200 airliners, leaving relatively little scope for a major local contribution.

Qantas Defence Services Ltd will modify four aircraft at its Brisbane facility and provide in-service support through the life of the aircraft, a spectrum of activity worth an estimated \$500 million over their life of type. Thales Australia is supporting development of the KC-30B mission systems, including development, manufacture and design and integration activities under subcontract to its European parent and EADS CASA. Australian Aerospace is assisting with technical documentation and support of the fuel system and Pennant Australia is supporting the logistics analysis.

The current SIDA target is approximately \$162 million. This comprises a range of activities for export sales orders from Airbus and General Electric, R&D and training and skills transfer to Qantas and EADS' local subsidiary, Australian Aerospace.

Air Warfare Destroyer (SEA 4000)

In September 1999 Defence commissioned a series of studies to determine the cost, schedule and risk impacts of incorporating a replacement naval Air Warfare capability into the Australian Defence Force (ADF). The strategic need to provide this capability was outlined in the Defence 2000 White Paper, where the vulnerability of the fleet without a long-range air-defence capability was highlighted.

At the time it was observed that, without a long-range air-defence capacity, Royal Australian Navy (RAN) fleet units would be more vulnerable to air attack, less capable of defending forces deployed off shore and less capable of contributing effectively to coalition operations. Consequently, the government agreed to replace the fleet of guided missile frigates (FFGs) with at least three air-defence capable ships expected to be significantly larger and more capable than the FFGs. They will make an essential contribution to the ability of the ADF to conduct operations, both within the context of regional contingencies and in the broader sense to otherwise enhance global security and stability.

In its primary role, the AWD will provide area air defence for accompanying ships as well as for land forces and infrastructure in proximate coastal areas, and for self-protection against attacking missiles and aircraft. The AEGIS weapon system - incorporating the state-of-the-art phased array radar, AN/SPY 1D(V) - will provide an advanced air defence system capable of engaging enemy aircraft at ranges in excess of 150km. The surface warfare function will include long range anti-ship missiles and a naval gun capable of firing extended range munitions that could also be used for support to land forces. The AWD will also be able to conduct undersea warfare and will be equipped with modern sonar systems, decoys and surface-launched torpedoes. The ability to embark and operate helicopters is also essential, in order to undertake surveillance and response to support these key warfare areas. The ship design will also include a margin for combat system growth over the life of the ships, to allow for the addition of new technologies as they become available.

The span of maritime operations the RAN continues to plan for is vast - ranging from peace time national tasks such as constabulary operations and naval diplomacy, to operations of higher intensity in times of tension and conflict such as maritime strike and interdiction and amphibious operations. The multi-tasking capacity, persistence and flexibility of RAN surface combatants will continue with the AWD, which will not only be capable across the full span of maritime operations, but also offer significant combat power, thereby making the AWD a key element of the ADF's effects-based operations concept.

With a range of up to 6000 nautical miles and the ability to remain at sea for prolonged periods, the AWD will ensure the ADF is able to safeguard the territorial integrity and natural resources of our extensive maritime zones - from sub-Antarctic climes to the tropical areas of our northern approaches. The modern capabilities and sophisticated command, control and communications fit of the AWD will ensure this platform is an enabler for Network Centric Warfare which can integrate seamlessly into a United States (US) task group and have full interoperability with other ADF units. The AWD will therefore provide a truly joint and combined operational capability for the ADF.

All of the aforementioned capabilities are crucial to achieve the fundamental Sea Control role of a surface combatant - the ability to secure and exercise freedom of action in an area of the sea for one's own purposes and, if required, deny the use of that area to an adversary. Hence, the AWD could be more aptly termed a sea control combatant, ideally suited to joint and maritime operations in the approaches to our continent in the defence of Australia, for contribution to the security of our immediate neighbourhood and to take part in US/Coalition operations far from our friendly shores in support of our broader national interests.

As planned, Australia is in the process of acquiring three new Air Warfare Destroyers, the first of which is due to enter service by the end of 2013. The ships are to be built in Adelaide by the AWD Alliance comprising the Defence Materiel Organisation (DMO), ASC Shipbuilding and Raytheon Australia. ASC Shipbuilding and Raytheon were selected in 2005 as shipbuilder and combat system systems engineer respectively.

In keeping with the Kinnaird reforms, two competing designs will be considered when the project comes up for second pass approval by government in the second half of 2007. These are the in-service Spanish F-100 designed by Navantia, which has been slightly modified for Australian conditions, and the preferred design evolved by Gibbs & Cox from the US Arleigh Burke class. Accordingly, Gibbs & Cox has been selected as the evolved platform designer for this project, while Spanish company Navantia has been selected as the existing (military off the shelf) platform designer for the competing design. As noted, the US Aegis combat system has been selected for fitting to either vessel, and will be supplied by the US Navy under a Foreign Military Sales agreement, through their agent Lockheed Martin, manufacturer of the system.

A new Air Warfare Destroyer Systems Centre was opened in Adelaide in August last year where Alliance participants will work with the two ship designers on the \$4.5-6 billion AWD program and bring the successful design to life.

The need to evaluate two competing designs precluded Gibbs & Cox from being a full member of the alliance, and they are participating in the project under a subcontract with Raytheon. Negotiations with F-100 designer Navantia over their participation in Phase 2 have been successfully concluded, and there will be further negotiations over the manner in which they would participate in Phase 3 were the F100 to be selected as the preferred design.

Raytheon's role is to integrate the core Aegis combat system with other likely 'Australia only' elements of the wider system, such as sonar and communications equipment and the electronic warfare suite. The company's role, however, is still not widely understood in some industry circles. Some of the technical risks that would normally face a project such as this have been mitigated by the selection of proven systems, such as Aegis, and proven designers, such as Gibbs & Cox or Navantia. That is not to say that significant technical risks are not still present; successfully constructing these vessels and integrating their complex systems at what is currently a green field site in South Australia will certainly be a challenge.

The publicly announced budget for the AWD Program is between \$4.5 and \$6 billion, though industry analysts have given estimates of up to \$8 billion if the Navy's full requirements are

to be met. An approved budget for the AWD Program will not be determined until Second Pass following detailed project definition work currently underway by the AWD Alliance.

Of \$1,326m approved expenditure for the Aegis combat system, estimated expenditure to 30 June 2007 was \$94m on long lead items. This was some \$125m less than earlier anticipated due to variation by the US Government on the FMS expenditure plan.

Australian Industry Involvement (AII)

The AWD project's intention is to maximise AII and, to that end, a national AWD road show was undertaken last year to explain the program to local industry and highlight areas of opportunity for involvement. In-country build and fitout and the integration of Australian unique systems into the ships together with their long term support will likely push AII to more than 60 per cent of the total cost.

Airborne Early Warning and Control (AIR 5077)

The six Wedgetail Airborne Early Warning & Control (AEW&C) aircraft ordered by the RAAF under Project Air 5077 will add critical leverage to the air defence and strike capabilities of its Hornets, Super Hornets and, in time, its F-35 Joint Strike Fighters. Indeed, without the Wedgetail AEW&C capability it is arguable that the RAAF will be unable to achieve or maintain the air combat edge that is one of the fundamental pillars of Australia's future defence capability.

However, this project, which applied many of the lessons of earlier defence acquisition programs, has encountered significant technical difficulties and is now running about 26 months behind its original schedule. The first two aircraft were scheduled for delivery to the RAAF in January 2007; deliveries have now been put back to March 2009, with the remainder due to be delivered by the end of that year.

Australia is the launch customer for the Wedgetail aircraft, which is based on Boeing's 737-700 twin-engined airliner fitted with an innovative phased array radar being developed by Northrop Grumman. From a cruising altitude of close to 40,000ft, the radar will have a range of more than 400km and the ability to detect certain hard to see targets such as cruise missiles.

The Wedgetail system will allow more effective detection, identification and tracking of targets and better control of fighters in combat, bestowing a significant and possibly decisive tactical advantage. Using similar technology to that which it employs in the radar it is building for the F-35 Joint Strike Fighter, Northrop Grumman's MESA radar for the Wedgetail is an Active Electronically Scanned Array (AESA) sensor with a steerable beam. It provides 360 degree coverage around the aircraft and is able to track air and sea targets simultaneously. It is designed to be able to track high-performance aircraft while continuously searching for other targets.

While the Aircraft's primary role will be surveillance and airspace control over Australia's Air/Sea gap, it can perform a range of other tasks including over-the-horizon targeting, battlefield surveillance, search and rescue and civil support operations. The AEW&C system is a crucial force multiplier for the Australian Defence Force as a whole.

The current total project cost of Project Air 5077 is \$3.521 billion in January 2007 dollars. In line with current Government policy, the project's budget is adjusted yearly to compensate for inflation and fluctuations in foreign currency exchange rates (principally against the US dollar).

Boeing Integrated Defense Systems was chosen as prime contractor after an open tender and

its prime contract, signed in December 2000, is worth \$2.926 billion in January 2007 dollars. The RAAF originally ordered four aircraft; in May 2004 the Commonwealth government approved the purchase of two more at a cost of \$225m. This decision had a significant effect on the levels of Australian Industry Involvement (see below).

The Wedgetail system consists of several elements: the aircraft, with its radar and airborne mission system, the ground-based AEW&C Support Facility (ASF), Operational Mission Simulator (OMS), Operational Flight Trainer (OFT) and Mission Support Segment (MSS). All are located at RAAF Williamtown, where the Wedgetail aircraft will be based.

Both the DMO and Boeing have long acknowledged that the greatest challenge in the program would be integration of the radar and mission system software. The Wedgetail program embodied many of the lessons learned on earlier, often unsuccessful defence acquisition projects involving a significant level of software development and integration.

Early progress on Project Air 5077 was good. The first two aircraft were built in Seattle by Boeing; the first of these made its maiden flight in 2004 and flight testing of the airborne mission system began in July 2005. However significant problems subsequently emerged in both flight testing and the laboratory with the radar, Electronic Support Measures (ESM) and communications data link systems.

Partly because the radar is too powerful for full power testing on the ground, many of its subsystems hadn't matured as quickly as hoped prior to flight testing. In particular, there were problems integrating the side-facing and fore-and-aft-facing antennas of the innovative MESA radar. Also, the data link was required to handle orders of magnitude more data and messages than on previous aircraft of this type, making integration with the mission system very complex. And the ESM suite, based on that of the RAAF's AP-3C Orion maritime patrol aircraft, needed to be adapted and upgraded to suit the Boeing 737 platform.

A five-month 're-baselining' exercise in May-November 2006 resulted in a new completion plan and schedule, calling for the achievement of key integration and flight testing milestones throughout 2007. Boeing appears to be performing well against this revised schedule, according to the DMO, and the schedule is described as 'robust and executable'.

Recent project achievements include the delivery of three 'green' B737s to RAAF Base Amberley for conversion by Boeing Australia Ltd into Wedgetail AEW&C aircraft. The last is due to arrive there in June 2007

In September 2007 the OFT, or cockpit simulator, will be commissioned at RAAF Williamtown. The OMS, for the radar and sensor operators, will be delivered in August 2008 and commissioned in September 2009, once the aircraft's mission system software is completed and tested.

The major element of risk in the program at present remains the technical maturity of the radar, communications and EW systems, and the integration of these with the airborne mission computing system.

Australian Industry Involvement (AII)

The project's AII program was intended to help develop the capability within Australian industry to carry out through life support of the AEW&C system. While a specified percentage was not set, the local content program represents about 18 per cent of the contract price.

Boeing Australia Ltd and BAE Systems Australia Ltd are the main local companies involved in an AII program that now comprises some \$474 million in local content and over \$900

million in Strategic Industry Development Activity (SIDA). BAE Systems Australia provides the ESM and electronic warfare self-protection systems, OMS, AEW&C Support Facility (ASF) and MSS.

The Commonwealth's initial decision to acquire just four aircraft meant all of them would be fitted out by Boeing in Seattle – it would have been uneconomic to do otherwise. The decision to acquire an extra two aircraft means that four of the six Wedgetail aircraft are now being fitted out in Australia by Boeing Australia Ltd: this involves replacement of key fuselage sections; installation of the radar antenna and all radar, processor and display hardware; installation of aerial refuelling receptacles; and installation and integration of ESM systems, their antennas and a range of communications and other equipment. Boeing Australia has reportedly carried out this extremely demanding, high-precision engineering task on its first aircraft to a very high standard.

The decision to buy the two additional aircraft has created around 170 new jobs in Brisbane, increased local content by some \$80 million, and increased SIDA by \$99 million.

Furthermore, as a result of the technology transfer into Australia, there is a prospect that Boeing Australia Ltd could also carry out the modification and integration at Amberley of the first of four Wedgetail aircraft ordered last year by the Republic of Korea; this work could be worth up to \$250 million. Bilateral agreements between the Australian and South Korean governments to enable this are under development.

Amphibious Assault Ship (LHD) (JP 2048 Phase 4)

Joint Project 2048 seeks to replace the capability of the current ADF amphibious platforms. Phase 4A/B will replace the heavy lift ship HMAS *Tobruk* and one of the two LPAs (HMAS *Manoora* or *Kanimbla*) with two Landing Ships Helicopter Dock (LHD). Phase 4C will replace the remaining LPA with a sealift capability by 2016-18. The two ships, to be named HMAS *Canberra* and *Adelaide*, are scheduled to enter service with the RAN from 2012.

Defence conducted a desktop survey in 2003 which established that there were only two designers with existing LHD designs that met Defence's criteria: Armaris (representing DCN and Thales) of France, with the 22,000 t *Mistral* design and Navantia of Spain, with the 27,000 t *Strategic Projection Ship*.

A Request for Information (RFI) was issued to the two designers on 10 Feb 2004 to determine whether their existing designs met the Outline Function and Performance Specifications for the requirement. The information received was inconclusive, so both designers were invited to participate in a Risk Reduction and Design Study which would provide more detailed commercial, technical and cost information. Four Australian shipbuilders were also contracted to advise on ship construction and through-life support issues; ADI (now Thales Australia), ASC, Austal/Raytheon and Tenix. An independent cost estimator was employed.

To confirm the information provided in the study and to inform the designers of the preferred contracting model, Requests for Quotation (RFQ) were issued to the designers and to the shipbuilders in January 2005. Responses were received in March 2005. This activity also aimed to establish a 'sail-away price' estimate for two ships built in Australia, and their life cycle costs. Under the Kinnaird procurement reforms it was also a requirement to compare the prices for local construction with prices for overseas construction, to quantify the 'cost premium' for local construction. This information was needed to support the Initial Business Case for First Pass approval.

First pass approval for the project was received in August 2005, when \$29.8m was committed for the next Design Development Activity phase (September 2005 – March 2006), during

which the Commonwealth worked with the designers in their respective locations in France and Spain to further develop the designs for the vessels. This process incorporated the necessary Australian environmental and technical requirements. It also reduced risk by laying a firm technical basis against which Australian tenderers could cost their proposals with a high degree of certainty.

Due to the perceived disparity between overseas and local build costs (believed to be of the order of 30 per cent) and the government's stated preference to build the ships in Australia, an acquisition strategy was approved at First Pass which:

- allowed Australian shipbuilders to bid either or both designs,
- did not specify any particular level of AII, and
- sought innovation to reduce the cost of an Australian build.

This saw the schedule extended to allow Australian shipyards to better familiarise themselves with both overseas designs and to compete with the very competitive bids made by Navantia and Armaris for their designs/production package.

The Commonwealth seeks to contract on a fixed-price basis with a single prime, which is expected to team with the designers and develop commercial relationships with Australian systems houses. Prices were also sought from the designers for overseas builds, to be retained as the 'off-the-shelf' option for presentation to government at Second Pass. Tenix has teamed with Navantia to offer a variation of Navantia's 27,000 tonne *BPC*, and ADI (now Thales Australia) has joined with Armaris to propose a variation of the Armaris 22,000-tonne *Mistral* class.

A Request for Tender (RFT) was released to Australian shipbuilders on 2 May 2006, inviting tenders for either or both of the two designs. The tender documentation allowed bidding companies to:

- submit fixed price bids,
- bid through life support (TLS) solutions,
- provide innovative solutions to improve price and schedule, and
- submit an extra option (outside the selection criteria) which would increase Australian industry content at a premium to the tendered price.

Tenders closed on 16 October 2006. Tender evaluation has been completed and a submission to Cabinet is being prepared (as of April 2007). It is expected Government will decide on a preferred tenderer in mid-2007, at which time a public announcement will be made.

Each ship will have the ability to transport a combined arms battalion group of around 1000 personnel, six helicopter landing spots and provision for a mix of troop lift and armed reconnaissance helicopters. It will also be able to transport up to 150 vehicles, including the new M1A1 Abrams tanks and other armoured vehicles. Each ship will also be equipped with medical facilities, including two operating theatres and a hospital ward.

Estimated approved project expenditure to 30 June 2007 is \$25.5m. Estimated expenditure for the year to 30 June 2007 is \$8.4m.

Australian Industry Involvement (AII)

Australian industry was briefed on the first pass outcomes for this project, including overseas versus local build costs. The RFT, issued in May 2006, incorporated a strategy that aimed to maximise Australian content within budgetary guidance, based on:

- mandating Australian products as costed options,

- options to substitute Australian materials and minor equipment, and
- through-life support by Australian industry.

Tenderers were also invited to make a further submission with their own proposals for additional Australian industry involvement at additional cost. This element is not a source selection criterion, and only the preferred tenderer's proposal will be considered.

Aside from construction, it is anticipated that there will be considerable Australian industry involvement in the high-value and leading technologies, in 'smart' skills such as the installation, design and integration of combat and communications systems and in the provision of equipment and fittings to meet Australian requirements. In-service support will be contracted to Australian industry for the life of the ships at an estimated value several times that of the construction program.

ANZAC Ship Helicopter (SEA 1411)

Australia is currently in the process of acquiring 11 Kaman SH-2G(A) Super Seasprite helicopters for its eight ANZAC Class frigates. However, due to considerable difficulties and subsequent delays in the integration of the helicopters' advanced mission systems and concerns over airworthiness, there is uncertainty as to whether this project will continue or be cancelled in favour of an alternative solution. The helicopters are intended to enhance the ships' surveillance and offensive capabilities and are equipped with radar and other sophisticated sensors along with torpedoes and anti-ship missiles. Flight simulator and support facilities are also being acquired.

With a highly sophisticated software-driven flight and tactical suite and armed with Kongsberg Penguin anti-ship missiles, the Super Seasprite will be a very capable aircraft and formidable weapons platform if and when it is delivered. Aircraft embarked upon ships will be required to fill a number of roles including surfaces surveillance, surface attack, anti-submarine warfare, naval gunfire support and other operations.

The RFT for the project was issued in October 1995. A decision to proceed was made in January 1997 and a contract was signed in June that year. Deliveries by prime contractor Kaman of fully compliant aircraft were to have commenced in March 2001 and to have been completed by August 2001. This was delayed by the failure of major subcontractor Litton Integrated Systems to successfully develop the Integrated Tactical Avionics System (ITAS), the integrated software package necessary to run the sensors, avionics and weapons. CSC Australia and Northrop Grumman Information Technology took over the major software subcontract abandoned by Litton and are providing systems engineering and software development and support.

Progress has been made with the integration of radar, datalink and Penguin missile with the mission control system. However, formal qualification testing of the integrated software will not be completed until at least mid-year (2007). In another setback, the RAN Seasprite fleet was grounded in March 2006 due to in-flight incidents that raised serious safety concerns within Defence regarding the Automatic Flight Control System (AFCS). According to Defence, due to loss of confidence in the flight control system, the aircraft must now meet airworthiness standards set by the ADF's Directorate-General Technical Airworthiness. These involve selected aspects of FAA Part 29 requirements (covering airworthiness standards for transport rotorcraft), which were adopted by the ADF soon after the signature of the original contract.

As a result of these issues, a two-phase remediation plan has been developed. Phase 1, which has been completed and tested, should allow the RAN to recommence flying with Flight Test

crews in late 2007. The Phase 2 component, for which Kaman proposed a US\$37.7m Statement of Work (SOW) to the DMO to upgrade the aircraft to current airworthiness standards, and which would take up to 29 months to complete, has not been agreed or approved. The work would primarily involve the development and installation of a second flight control computer, capable of monitoring and overruling commands issued by the primary computer.

There remains some systems level evaluation to be completed once the full capability helicopter commences flying, including flight and shipboard interface trials with the ANZAC class frigates.

Defence has been asked to provide government with three major options for consideration. These included:

- continuing with the program as is, including an assessment of the cost and schedule of delivering the capability,
- what modifications could be made to the program, at what cost and with what result, and
- what would be involved were the government to decide to get out of the Super Seasprite altogether, how could the capability be delivered, and at what cost.

At the time of writing the government has made no decision on these issues.

There have been criticisms that Defence's project management team should have prevented this state of affairs, and that the contract in 1997 should have had more effective penalty clauses to encourage contractor performance. Defence asserts, however, that it was prime contractor Kaman Aerospace's task to manage sub contractor Litton, and that it was the Defence project team that advised Kaman of problems with subcontractor performance early in the contract execution.

The suitability of the chosen contractors and the contracting strategy has been questioned in view of the highly developmental, software-intensive nature of this project. However, it has to be said that Kaman agreed a standard contract widely understood by both industry and Defence. All potential tenderers received a draft of the Request for Tender (RFT) which was used to inform the shape of the final tender documentation.

The broader question as to whether Defence should seek to buy 'Australia only' solutions on projects like this with only a small production run and thus the likelihood of incurring significant development costs remains unanswered, although it is understood that Kaman had hoped to sell more of the Seasprites and no doubt saw the effort in designing the composite Main Rotor Blades and the Integrated Tactical Avionics System as entrée to other markets.

The original project budget was \$745.6 million in February 1996 dollars. In 2007 dollars it currently stands at \$1005m. Cumulative expenditure to June 2006 was \$940m. Spending for the year to June 2007 was originally estimated at \$64m but is now only \$9m DMO says that the reduction of \$55m is due to technical issues encountered during the year, primarily associated with software integration and the aircraft's automatic flight control system.

Australian Industry Involvement (AII):

Kaman is teamed with CSC Australia, Scientific Management Associates and Safe Air NZ. The contracted total AII obligation stands at some \$345m in today's dollars. Kaman earlier reported \$387m in AII and expects to complete the project having committed \$492m in AII.

Armed Reconnaissance Helicopter (AIR 87)

The Army is gradually fielding a force of 22 Eurocopter Tiger Armed Reconnaissance Helicopters (ARH) under Project Air 87. These will equip the 1st Aviation Regiment in Darwin, the Aircraft Research & Development Unit (ARDU) in Adelaide, and the Army Aviation Training Centre at Oakey.

The Tiger ARH will be a key element of Australia's emerging Hardened and Networked Army. Its suite of sensors and tactical data links, along with its gun and missile armament, bestow a significant airborne reconnaissance capability along with the ability to escort other helicopters and provide fire support when required. The Tiger will replace the Army's obsolete, Vietnam-era Bell UH-1H 'Bushranger' gunships and unarmed Bell 206 Kiowa reconnaissance helicopters.

The total approved budget for this project is \$1.99 billion at January 2007 prices. This includes a \$1.2 billion fixed-price prime contract signed in December 2001 with Australian Aerospace Ltd, the Australian subsidiary of Eurocopter. The prime contract also includes a Ground Mission Management System and a training system with a suite of aircrew and ground crew training devices and a contractor logistics support system.

The Tiger is a two-seat helicopter weighing six tonnes and powered by two Turbomeca MTR 390 turbine engines. Based closely on the French Army's Tiger HAP variant, Australia's ARH is armed with a 30mm gun, 70mm rockets, Lockheed Martin Hellfire air-to-ground missiles and infrared and electro-optic reconnaissance sensors. Built largely from carbon fibre composites with armour and Electronic Warfare Self-Protection (EWSP) systems, the Tiger ARH carries a pilot and 'battle captain' – the tactical coordinator and aircraft commander. Australian-specific modifications have been minimised to reduce project risks – these comprise secure radios, the Hellfire missiles and some minor associated cockpit modifications.

By May 2007 six aircraft had been accepted into service, with five more due for acceptance through 2007. Final delivery is currently scheduled for the end of 2008. The first four were manufactured by Eurocopter in France and the remainder are being assembled at Australian Aerospace's Brisbane facility. The 1st Aviation Regiment has moved into its new facilities at Robertson Barracks.

After a promising start, the project has dropped behind schedule, largely because of delays with the Franco-German elements of the Tiger program rather than any problem specific to Australia's ARH variant. These were resolved during 2006 when the French HAP contracted configuration was accepted. Australia is presently finalising engineering change proposals that reflect this work and aims for approval and acceptance of the equivalent ARH configuration during 2007.

Australian Military Type certification of Australia's Tigers flows in part from certification of the French and German 'parent' aircraft. An initial Australian Military Type certificate, with significant limitations, was granted in October 2005 and extended for a further 12 months in October 2006. The limitations will be progressively lifted during 2007 as the Tiger ARH certification program proceeds.

A key impact of these delays has been on the training of Australian Qualified Flying Instructors (QFIs) who will train squadron pilots. The delay has been compounded by heavy ADF operational tasking which has resulted in a shortage of Army rotary wing test pilots who can conduct acceptance testing.

As a result, Initial Operational Capability (IOC) with a cadre of trained aircrew for the first of the two Squadrons has been delayed significantly from the original schedule of July 2007. Army expects to have an operational Troop of helicopters by December 2008 with a fully operational Squadron by 2010.

By May 2007 Army had trained nine ARH pilots, including three QFIs; a further six QFIs will be trained by October 2007, at which point training of squadron pilots and battle captains will commence, almost 12 months later than planned. Pilots will take six months to transition to the ARH Tiger; battle captains will take 12 months.

The throughput of pilots and battle captains will increase once sufficient instructors have been trained and the new twin-dome flight simulator is commissioned. This was delivered to Oakey in 2005 and final acceptance and accreditation is now planned for 2008. Once fully accredited to Civil Aviation Safety Authority (CASA) Level D, this will allow up to 85 per cent of pilot training to be conducted in the simulator.

Full accreditation of the simulator has been delayed by the technical challenges associated with achieving accreditation of a military simulator to CASA Level D standard, which is based primarily on civil requirements. However, the simulator is being used for QFI familiarisation and exposure to emergency procedures. Defence and Australian Aerospace are trying to compress the certification schedule so that ARH crews can start to use it for some elements of training during 2007.

Meanwhile, to ease the transition from relatively simple legacy aircraft to modern helicopters with digital cockpits, Army is developing an integrated lead-in skills training system for Tiger aircrew based on a light, twin-engine commercial helicopter with a glass cockpit and digital avionics.

Australia is the first Tiger customer to order the Hellfire II laser-guided anti-armour missile and so has led the integration program. This was completed in December 2005 with seven successful test firings at Woomera, though some minor testing of components such as the environmental protective cover for the missile seeker head and the laser designator remains to be completed.

The Tiger will gather and exchange tactical and surveillance data with Army's Battlefield Command Support System (BCSS) through a dedicated suite of Ground Mission Equipment (GME). The GME was delivered and accepted at the Australian Army Aviation Training Centre at Oakey in 2006.

Eurocopter has completed minor engine modifications to ensure that the ARH meets the contracted requirement for additional power margins under certain flight conditions – these will increase the engine power margin by about three per cent. The modifications are being implemented across the ARH fleet, with final acceptance and validation due by December 2007.

With the majority of technical issues relating to the Tiger ARH version now settled, the major potential risk to the program is of further schedule slippage in the delivery of the flight simulator and associated Cockpit Procedures Trainers. The project stakeholders are focusing strongly on accelerating the delivery of aircrew training devices.

Australian Industry Involvement (AII)

The AII Target for this project is for the provision of in-service support capability, especially for sensors, mission and EW system software and airframe, engine and mechanical repairs.

Except for the first four aircraft, which were built in France, the Tigers are being assembled by Australian Aerospace Pty Ltd in Brisbane; this will be their logistics support base. Assembly and support of the MRH90 trooplift helicopter and an assembly line for Eurocopter's EC-120 Colibri light turbine helicopter will contribute to sustaining this capability.

ADI Ltd and Avalon Systems Pty Ltd will be responsible for the ground mission segment and part of the software support aspects of the contract. Haliburton KBR Pty Ltd is responsible for delivering aircrew and ground crew training except for tactical training, which will be provided by uniformed personnel. Thales Training and Simulation Pty Ltd have installed the aircrew training devices, which are still to be finalised and accepted. In addition, Australia will be the sole source of some components for the global Tiger program: ADI is providing electrical wiring looms, Ferra Engineering is building flight control components and all ground training devices have been designed and produced in Australia by Australian Aerospace and local SMEs.

In April 2006, Australian Aerospace announced it would invest some \$15 million establishing a state-of-the-art composite fibre manufacturing plant in Queensland. This will initially produce fuselage parts and fittings for Tiger and MRH90 helicopters.

Armidale Class Patrol Boat (SEA 1444)

This project is acquiring and sustaining for 15 years a fleet of 14 Armidale-Class Patrol Boats (ACPBs) to replace the RAN's 15-strong fleet of Fremantle-class patrol boats under a contract worth \$678 million (in 2002 prices).

Some 11 boats, built by Austal Ships Ltd in Fremantle, had been delivered by 30 April 2007. The remainder will be delivered by November 2007. The entire fleet will be home ported in Darwin and Cairns and supported throughout their service lives by Defence Maritime Services Pty Ltd (DMS).

The lightly-armed 56.8m ACPBs are constructed from aluminium to merchant classification rules, rather than to a military specification. DMS, a 50:50 joint venture between P&O Maritime Services and SERCo, is prime contractor. Austal is a principal sub-contractor, along with Canberra-based CEA Technologies Pty Ltd, which is providing the boats' communications and sensor suites.

The RAN's Patrol Boat Force carries out search and rescue, surveillance and interception of vessels suspected of illegal fishery, quarantine, customs or immigration offences. Along with the Australian Customs Service's eight Bay-class patrol boats (also built by Austal), the ACPBs are a key maritime patrol and response element of Australia's Civil Surveillance Program, which is managed by Border Protection Command, an inter-agency organization led by Defence and Customs.

The ACPB are a significant improvement over the Fremantles in most areas. Their 3,000 nautical mile range is 20 per cent greater and they are equipped with a stabilised, remote-controlled 25mm M242 Bushmaster cannon. Being some 15m longer and equipped with stabilisers, they can operate in worse sea conditions. They also carry two 7.24m rigid inflatable boats, rather than one, to enable concurrent boarding operations and these can be launched and recovered in higher seas. However, they are not designed to serve further south than 50° latitude. They have a crew of 21 with accommodation for twenty extra personnel if the mission demands it.

The ACPB contract is based on a functional specification stating the required capability and rate of effort of the ACPB fleet. The prime contractor is responsible for delivering the boats and for maintaining them throughout their 15-year service lives.

Defence issued the tender in 2002. DMS was chosen in August 2003 and the original acquisition contract for twelve boats, then worth \$551 million (in 2002 prices), was signed in December 2003. This included the cost of building 12 boats by Austal at its Henderson yard in Western Australia and 15 years in-service support by DMS which is responsible for all training, logistics and maintenance throughout their operational lives. In 2004, the government announced that two additional boats would be added to the build.

DMS is prime contractor for the RAN's 10-year, \$320 million Port Services and Support Craft (PSSC) contract, so had considerable previous experience of efficiently operating over 100 small craft of different types under contract to the Navy.

Under its contract, DMS is required to guarantee a specified level of availability. The Armidale-class boats must be available for a combined total of 3,500 sea days per year, compared with the Fremantle-class fleet's average availability rate of about 2,700 days per year. A surge capacity of 600 additional days per year is also required to meet short notice contingencies.

The first of class, HMAS Armidale, was commissioned in Darwin in June 2005. A further two boats were ordered in 2006 specifically to patrol Australia's North West Shelf oil and natural gas installations. These were acquired as an extension to the original contract and supported by DMS under the same contractual arrangements.

To ensure the most efficient use of each boat, the Navy has adopted a multi-crew arrangement based on three 'Divisions'. The 'Attack' and 'Assail' Divisions, each consisting of four ACPB and six crews, have been formed in Darwin and at the time of writing a third Division, 'Ardent', was forming in Cairns.

The multi-crewing concept aims to maximise the benefit from each boat's operational availability while providing programming certainty for things like crew leave and training. Each crew spends six weeks at sea followed by a four-week stand-down period. Defence reports that the arrangement appears popular with crews while training shortfalls have been sharply reduced.

The Navy has no plans at present to upgrade or enhance the ACPBs. However, in late-2006 it conducted a trial of a small, electrically-powered Unmanned Aerial System (UAS) aboard an ACPB to study the potential benefits and operational challenges of operating a surveillance UAS from such a small vessel. Further analysis and experimentation is planned during 2007 and 2008 to refine operational and technical requirements for possible integration of UAS aboard an ACPB, but there are no plans at present to acquire such a capability.

The RAN has deliberately adopted a low-risk approach to the ACPB project. Austal is a world-class designer and builder of aluminium-hulled merchant and military craft and the Armidale-class boats are constructed to merchant classification rules with a simple, low-risk communications and sensor suite. Nevertheless, unexpected technical difficulties have emerged.

In 2006 and then again in early 2007, the ACPB fleet encountered significant problems with water contamination in their fuel systems, resulting in most of the fleet being either tied up or subject to 'operational restrictions'. While water contamination is to some degree an inevitable consequence of operating diesel-powered vessels in the tropics, the ACPBs suffered badly and the exact cause remains unclear.

The ACPB design includes a ‘fuel stripper’ to ensure adequate purity but the Navy, DMS, Austal and engine manufacturer MTU Detroit Diesel have redesigned the fuel system to try and solve the problem. At the time of writing the new system was performing well in tests. Some ACPBs were operating with an interim ‘fix’ while new-build boats will be delivered with the new design and boats already delivered will be retrofitted with the redesigned fuel system by mid-2007.

Absolute responsibility for the fuel problem hasn’t been determined as yet. The contract with DMS requires the company to maintain and repair the ACPBs and shoulder responsibility for ensuring availability, unless it can be demonstrated that the difficulties have been caused by the way the Navy operates them.

With most of the fleet now delivered, and the multi-crewing concept delivering positive outcomes, the major areas of potential program risk now are the long term reliability of the vessels, the potential for other unforeseen issues to arrive and the ability of DMS to provide efficient and sustainable in-service and logistics support throughout their service lives.

Australian Industry Involvement (AII)

The essential target was for 65 per cent AII in the construction of the boats and 90 per cent in maintenance and in-service support. The program is meeting these targets. The boats, their communications and sensor systems have been designed and built in Australia (although some of the sensor equipment is imported). DMS is providing in-service support using Australian staff organised in Ship Management Teams located at Darwin and Cairns.

Collins Reliability & Sustainability (SEA 1439 Phase 3)

These two current phases of SEA 1439 (Collins Continuous Improvement) comprise a series of sustainability and reliability enhancements to the Collins submarine and the replacement of the original combat system, aimed at bringing the submarines to full operational capability.

SEA 1439 Phase 3 consists of a large number of discrete modifications to the Collins Class submarines and shore infrastructure. They are being introduced progressively over a number of years and are fitted to submarines during appropriate maintenance periods when the modification packages become available. Because the modifications require extensive design and integration within the platform they can only be completed during full cycle dockings (FCD), which currently occur at 7-year cycles. Completion of the entire Phase 3 program, which is dependant on the submarines’ FCD program, is planned for 2015.

Remaining major activities include Special Forces modifications, sewage system automation and fire fighting safety improvements. Of these, the prototype Special Forces capability modifications have been implemented on HMAS COLLINS as part of a ‘staged delivery’ system development life cycle to minimise risk and to match ASC design and production capacity. Design of the Sewage System upgrade is complete and the modifications have been implemented on HMAS WALLER in its full cycle docking. The remaining submarines will be modified during their next full cycle dockings.

The firefighting modifications are being fitted during HMAS DECHAINEUX’s current FCD and will be installed in HMAS SHEEAN during its next FCD. The extent of the fire fighting modifications prohibits fitting into HMAS FARNCOMB during its Mid Cycle Docking (MCD).

The subsequent Phase 5 Continuous Improvement Program (CIP) is marking a new direction in the through-life management of submarine capability through the provision of regular

capability upgrades rather than a mid-life upgrade for the class. Activities under the program include:

- Installation of additional third generation propellers already prototyped under SEA 1439 Ph. 3
- the class fit of multi-functional communications antenna and mast prototyped under SEA 1439 Ph. 4B
- the class fit of extremely high frequency communications antenna and mast, and
- sub-microwave ESM upgrade.

Of the \$375 million approved for SEA 1439 Phase 3, cumulative expenditure to June 2006 was \$178m, with spending of \$43m anticipated during 2006-07 bringing the total spend to \$221m. This is \$8m more than previously estimated due to an accelerating implementation schedule for the modifications carried out under this phase.

SEA 1439 Phase 4, the Replacement Combat System, involves replacement of the tactical component of the combat system by the AN/BYG-1 tactical command and control system, sonar control and display upgrades, plus system and navigation improvements. The developmental risk associated with the AN/BYG-1 is shared with the US Navy (USN). The Commonwealth assumes the risk associated with Collins-specific aspects of the AN/BYG-1 and the remainder of the sonar and navigation upgrades, including system integration risks.

A major part of the RCS is being procured from the United States Navy, initially via a Foreign Military Sales case signed in June 2003 which saw the procurement of five AN/BYG-1 systems. Of these one was for the Australian test facility, one for the US test facility at Naval Undersea Weapons Center, one for DSTO research and two systems for the first two submarines to be converted. The remaining four boat systems and upgrades to the shore systems are being acquired under the Armaments Cooperative Project (ACP) arrangement with the USN. Under this cooperative program, Raytheon US and General Dynamics will provide the systems and the ongoing development of the combat system.

A key element of the ACP is the use of COTS technology updates to manage obsolescence and related integrated logistic support by incremental replacement. The hardware improvement will result in increased processing power, enabling incremental improvement to system software capability. Improvements for Australian submarines under this continuous improvement program will focus on improved user displays, operator usability, tactical situation awareness and the early integration of the Common Broadband Advanced Sonar System (CBASS) torpedo capability.

Multi-function system hardware including servers, displays, harnesses and smaller components from Australian-based suppliers are being delivered progressively. Fully tested USN tactical software was delivered in December 2005, allowing the start of the full integration at the land-based Integration Test and Training Facility (ITTF), with initial integration of Australian supplied equipment and software commencing in September 2005 as planned. Replacement combat system integration was completed as scheduled in April 2006.

Acceptance of the ITTF as a fully integrated and tested system was achieved as planned in August 2006. The ITTF is operated by the Defence Materiel Organisation during the integration, test and initial training phases of the project and then shared with the Navy for on-going training and development. The approved acquisition strategy identified Raytheon Australia Pty Ltd (RAPL) as the integration support contractor and ASC Pty Ltd as the submarine installation contractor. Under a \$54 million contract signed in August 2003, RAPL is tasked to design, develop and produce hardware and software to support the installation and integration of the combat system into the submarines.

Under Through Life Support Agreement orders, ASC Pty Ltd is undertaking platform modification design and preparatory work for the installation of the RCS. An order was placed with ASC for installation of the first RCS in HMAS WALLER. This task was completed in late 2006 and HMAS WALLER is soon to commence post-FCD sea trials, including an extensive period of operational testing, prior to acceptance. The current schedule is to achieve Interim Operational Release by the end of third quarter 2007.

The next submarines to receive the new combat system will be HMAS FARNCOMB (2007–2008 – MCD) and HMAS DECHAINEUX (2008 – FCD). Platforms will be progressively upgraded on a scheduled availability basis with all submarines upgraded by the end of the decade.

Of the \$448m approved funding for Phase 4A, cumulative expenditure to June 2006 was \$298m with a further spend of \$56m estimated to June 2007. Approved funding is expected to cover the acquisition and installation of the current USN AN/BYG-1 system as well as sonar upgrades on all the Collins class submarines. Some of the costs under the TLS Agreement are being refined but are expected to remain within budget. As noted earlier, later equipment is being procured under the Armaments Cooperation Project with the USN, rather than as an FMS case.

Australian Industry Involvement (AII)

While the capability enhancements and improvements to the Collins submarine involve overseas sourcing of major equipment items there is very considerable scope for the continued involvement of Australian industry in the design, integration, installation and long term support of the submarines and their equipment as well as ongoing opportunities for the manufacture and supply of components. The original estimate of up to 30% AII is likely to be achieved.

Electronic Warfare Self Protection for Selected Aircraft (AIR 5416 Phase 2)

AIR 5416 (Project Echidna) was established to redress the electronic warfare self protection (EWSP) limitations of selected ADF aircraft. Echidna had its genesis in two projects, one concerned with upgrading the EW capabilities of the F/RF-111 fleet and the other with equipping ADF transport aircraft with EWSP systems. These projects were restructured to create AIR 5416, with short-term action taken to upgrade EWSP suites on C-130H and F-111 aircraft to meet operational needs.

Echidna's first phase had three stages. The first was for the full scale engineering development (FSED) by BAE Systems of an indigenous radar warning receiver, the ALR-2002, as a key element of the Echidna EWSP suite. The second stage, completed in 2002, provided for separate 18-month funded Initial Design Activities (IDA) conducted by Tenix Defence Systems and BAE Systems for the design and costing of a common EWSP suite. The third stage, which is on-going, is for the provision of ballistic protection measures for the Black Hawk helicopter.

Under the current Echidna Phase 2, EWSP systems and ballistic protection measures are being acquired for selected ADF aircraft under the following sub-phases:

- Phase 2A - Black Hawk and Chinook helicopters
- Phase 2B - C-130H tactical transport fleet
- Phase 2C - Ballistic protection measures for the RAN Sea King fleet (subject to the retirement plans for the aircraft giving an adequate return on investment)

Echidna Phase 2A will bring to production the design commenced in Phase 1 for the Black Hawk and Chinook helicopter fleets. A \$121.5 million contract was signed with BAE Systems in February 2005 for the design, development, integration and installation of an EWSP capability for Black Hawk and Chinook Aircraft. The Chinook detailed design will be completed in December 2007, with modifications of the first Chinook to commence in March 2008. The delay is due to aircraft unavailability due to recent and potential overseas deployments and contract modifications.

Subject to satisfactory contract negotiation for the full rate production contract, the EWSP systems for Chinook and Black Hawk helicopters will include the ALR-2002 radar warning receiver. This sub-phase also includes support infrastructure such as modifications to the Black Hawk simulator. The Black Hawk Architectural Design Review, completed in April 2006, is the first platform level major milestone completed under this phase.

The Black Hawk detailed design will be completed in July 2007. Modification of the first aircraft is expected to commence in October 2007 with acceptance of the first modified Black Hawk expected by the end of 2008. The acceptance date has slipped by six months due to the introduction of an Army Minor Project – Black Hawk Interim EW—into the Prime Contract with BAE Systems. Army Aviation Systems Program Office is now responsible for production of all helicopter modifications and the achievement of initial operating capability (being six modified Black Hawks) will be determined by Army and the aircraft Depot Level Maintenance schedule.

Phase 2B will further develop the system installed earlier on four C-130H aircraft and extend it to all 12 aircraft in the C-130H fleet. A \$25 million contract for the integration and installation of the EWSP capability was signed with Tenix Defence Aerospace Division, prime contractor for the previous installation, on 22 December 2004. The first three C-130H aircraft modified with EWSP were delivered in early 2007 on time and within the original Tenix contract master schedule. The in-service date (ISD) for the EWSP modification of all 12 C-130H Aircraft is mid-2008.

Approved expenditure for Phase 2 is \$295 million. Estimated cumulative expenditure to June 2007 is \$147m. This is \$3m less than original estimated due to reduced spending on the ALR-2002 element of the program.

Phase 3 of Echidna will enhance the EWSP capability of the F-111 to ensure its operational effectiveness to the planned retirement date of the aircraft. This phase is in production and should be completed within 12 months.

Phase 4A comprises two capability enhancements for the C-130J fleet: installation of countermeasures dispensing and missile warning systems, and the incorporation of ballistic protection in all aircraft. This phase was recently finished with the completion of minor enhancements to the mission support system at the Joint Electronic Warfare Operational Support Unit (JEWOSU).

Australian Industry Involvement (AII)

No specific AII target has been set for AIR 5416 although there are AII objectives for Echidna Phase 2 that are related to flow down of the strategic industry development and sustainment requirements set out in the Defence Electronics Sector Strategic Plan. In this respect, Phase 2A industry activities are in close accordance with the development of those industry capabilities seen as critical for Australia's defence self reliance, including military systems integration and electronic warfare systems.

The Australian technology content of the ALR-2002 radar warning receiver and the SIIDAS Electronic Warfare Controller is considerable. Both Australian design systems include most

of the software, 80 per cent of the hardware piece parts with 30 per cent of the ALR-2002 provided through Micreco for RF components. All design, production and testing is carried out in Australia.

FFG Progressive Upgrade (SEA 1390 Phase 2)

With the decommissioning of two of the oldest ships, 02 CANBERRA (in November 2005), and 01 ADELAIDE (planned for January 2008), the RAN will retain four ADELAIDE Class frigates based on the US designed FFG-7 guided missile frigate, the earlier two of which were built in the United States and the other two in Australia.

Designed as carrier escorts for operation in low to moderate threat environments, they came with modest combat capabilities, including anti-air and anti-ship missile systems, a 76mm gun and torpedo tubes. Additional enhancements for RAN operations included the addition of a Seahawk helicopter and the Nukla anti-missile decoy.

The SEA 1390 Progressive Upgrade project was initiated due to the growing mismatch between the limited capability of the FFG's sensor and weapon systems and the increasing and complex regional threat environment. The ships have also experienced supportability problems through component obsolescence and the high maintenance costs of some equipment.

This substantial upgrade will restore the FFG's parity against regional capabilities through improvements to their air defence, anti-submarine and anti-surface warfare capabilities, with specific emphasis on improved self-defence against anti-ship missiles—a significant performance shortcoming. It is anticipated that the service life of the two US-built ships and the two younger Australian-built ships will be extended progressively from 2016 to 2020.

ADI Limited (now Thales Australia Ltd) was awarded the prime implementation contract, which is now worth \$987 million (in March 2007 dollars). ADI's successful bid included the upgrade of the existing FFG fire control system to a modern variant and the installation of a Mk 41 VLS missile launch system. The Evolved SeaSparrow Missile (ESSM) will be used as the short range self-defence missile and the Phalanx close in weapon system will also be integrated into the fire control system.

The command and control system is being wholly replaced with a local area network, linking all sensors and weapons. The hull-mounted sonar is also being replaced and the current long-range air warning radar upgraded. The provision of the Link 16 tactical data link will improve communications with allies, while replacement of the diesel generators and static frequency converters will improve the ships through life supportability. A further upgrade will see the four ships equipped with SM-2 surface to air missiles, a move designed to further boost the ships' air defence capabilities. That task will be undertaken separately but in parallel with the upgrade program.

While extending the life and reliability of the platform was not considered unusually difficult, the development and integration of the ships combat system has been a major challenge. Schedule risk for this project has always been high due to the complex and extensive weapon, sensor, and command and control systems upgrades. Difficulties with the integration task have contributed to an overall schedule delay, now exceeding 40 months for the provisional acceptance of the lead ship for upgrade. This has been a troubling issue with the project in view of the high tempo of operations involving the RAN in recent years.

The lead ship in the program, HMAS SYDNEY, was formally handed back to the Navy on 28 April 2006, following extensive harbour tests and sea trials, which had commenced in late

2004. Contrary to some speculation, the sea trials revealed no adverse impact on the ship's performance due to increased weight from the upgrade or instability from the forward mounting of the Mk 41 Vertical Launch System. HMAS SYDNEY achieved contractual provisional acceptance on 15 December 2006.

The first follow-on FFG for the Upgrade, HMAS MELBOURNE, entered the Captain Cook Graving Dock at Garden Island, Sydney in mid-February 2005 and formally commenced the production and installation phase of the upgrade on 27 February 2005. Current planning has HMAS MELBOURNE being provisionally accepted by the RAN in October 2007.

HMAS Darwin commenced the docking phase of her upgrade in January 2007 and is expected to complete the docking element in early June 2007. HMAS Newcastle is scheduled to enter upgrade for the docking element of the upgrade in October 2007. The program should be completed with the delivery of the last ship in mid-2009. Despite the extensive and serious schedule delay the project is still within budget although some future slippage is likely.

Cumulative expenditure of the project to June 2006 was \$1,021m from an approved budget of \$1,480m (2006-07 Additional Estimate). Expenditure during 2006-07 is now estimated at \$43m, some \$48m less than previously forecast. According to Defence, this is primarily due to a suspension of prime contract earned value payments in order to avoid a prepayment resulting from the Contract Master Schedule required by the Deed of Settlement and Release agreed 29 May 2006. This impact was not known until August 2006. The additional work has been funded by the prime contractor from profit in 2006-07. Additionally, the implementation of a Deed of Settlement and Release puts greater emphasis on milestones, and not all have been accepted as planned for 2006-07.

The cost impact of the decision to upgrade four instead of six frigates is now finalised. The FFG Upgrade prime contract was renegotiated as a global settlement and a Deed of Settlement and Release signed 29 May 2006. This formalised the Government's decision (November 2003) to reduce the FFG Upgrade project from 6 to 4 ships; settled a number of outstanding commercial and contractual issues on this project and agreed a Contract Final Acceptance of December 2009 but within the fixed price which was reduced by approximately \$40 million dollars (Feb 98 Contract base date price).

Australian Industry Involvement (AII)

ADI Limited was contracted to achieve AII levels of 52 per cent of the contract value. The support and maintenance of new operational software at the Weapon System Support Centre, established by ADI at Garden Island, is an important component of AII. It is anticipated that ADI's 52 per cent target of contract value will be realised.

Heavy Airlift (AIR 8000 Phase 3)

The RAAF has ordered four Boeing C-17 Globemaster III heavy airlifters to support ongoing deployments of the ADF around the globe.

The C-17 is a large, four-engined jet transport aircraft with a maximum payload of 74.7 tonnes and a maximum range of 5,600 nautical miles. Although it flies at speeds close to that of a modern jet airliner, it can land and take off on short, rough airstrips and carry large, awkwardly shaped military cargoes which would be too big, heavy or uneconomical to be carried by the smaller C-130 Hercules.

Project Air 8000 aims to modernize or replace a number of ADF airlift assets. The C17, acquired under Phase 3, represents the top end of the ADF's airlift capability; other as yet unapproved phases will see the RAAF's ageing fleet of C-130H Hercules replaced or

refurbished, and its DHC-4 Caribous replaced with a new Battlefield Airlift Capability. The ADF's aim is, as far as practicable, to increase the efficiency and effect of military airlift whilst reducing the personnel and work hours required. It will employ 'factory to fox-hole' logistics theory in a more or less integrated family of airlifters able to use a common family of cargo pallets and handling equipment to transfer cargo and equipment rapidly from one aircraft type to another, right down the supply chain.

Since 1999 the ADF has undertaken significant deployments into the near region, the Middle East and further afield. The increasingly expeditionary nature of ADF operations requires it to deploy rapidly large volumes of equipment and then support its personnel and equipment in theatre. The loads, distances and speeds involved demand a long-range heavy airlifter.

While most combat equipment and military vehicles are still designed to fit inside the ubiquitous Hercules, military equipment is generally heavier and bulkier than when the Hercules was designed during the early-1950s. Military vehicles, in particular, are carrying more armour so defence forces need bigger aircraft to carry them. The USAF has ordered 180 C-17s, the UK's Royal Air Force has ordered five and in early 2007 Canada ordered four aircraft.

The C-17 can carry between four and five times the load of a Hercules flying to the same destination. A single C-17 could carry a 73 tonne load from Amberley to Oman, via Darwin and Butterworth, in about 15.5 flying hours. It would take four Hercules, with four crews, requiring three or four times the parking space to achieve the same result.

Likely C-17 payloads would consist of a Chinook helicopter, complete with a support vehicle, 15-tonne truck-mounted crane and 43 personnel; or three MRH90 helicopters or four Tiger armed reconnaissance helicopters; or five Bushmaster or ASLAV armoured vehicles. The C-17 can also carry out low-level night operations using Night Vision Goggles to drop paratroops and equipment, or evacuate casualties from war zones and disaster areas.

Australia has relied on its allies or on chartering 'outsize' airlifters such as the Antonov 124 to shift heavy equipment in the past. But this is expensive and global high demand for a limited pool of these aircraft means they aren't always available when required.

The Commonwealth government decided it needed its own heavy airlift capability, operating under its own control. There is only one Western aircraft currently in production and available to meet that need, hence the unusual speed with which the C-17 was acquired – 9 months from order to first delivery in December 2006.

The approved project budget for Air 8000 Ph.3 is \$2.2 billion in December 2006 prices. The aircraft are being acquired through the US Air Force under a US Foreign Military Sales (FMS) arrangement. The project cost includes training, spares and infrastructure upgrades.

Australia's C-17s are identical to the USAF aircraft, except for the national markings. They will equip the RAAF's 36 Squadron; this has relocated from Richmond, NSW, to Amberley which has runways and engineering facilities better suited to such large aircraft and is now a de facto 'heavy jet' base for the RAAF.

The first of the RAAF's four aircraft was delivered in December 2006. The second was delivered in May 2007 with the remaining two due for delivery in mid-2008. Initial Operational Capability (IOC) is scheduled for August 2007, at which time 36 Squadron should have two C-17s, four fully trained crews comprising two pilots and a loadmaster each, and should have completed a comprehensive Transition, Training, Test and Evaluation (TTTE) program.

Full operational capability is scheduled for 2011, after delivery of all four aircraft and a flight simulator, the establishment of a minimum of eight crews to support the C-17 fleet, and completion of necessary airbase infrastructure upgrades at Amberley. The C-17s are expected to fly about 5,000 hours a year and will remain in service for 30 years.

Australian Industry Involvement (AII)

The exact scope of AII associated with this purchase is still being worked out. Boeing proposed an Australian Industry Capability program valued at \$345m over the life of the aircraft and, in line with the Defence Industry Policy released in early-2007, this will focus on developing and sustaining strategically important industry capabilities with a broader application, rather than low-level work associated solely with the C-17 itself. The C-17 production line is nearing its end and an efficient and effective in-service support regime has already been established for the global C-17 fleet so there are few opportunities for Australian companies in these areas, in any case.

For economy of scale, all C-17s operated by the USAF, Australia, Britain and Canada are maintained by Boeing in the USA under a C-17 Globemaster Sustainment Partnership (GSP) contract between Boeing and the US Air Force. In Australia the RAAF is responsible for flight line and so-called ‘operational maintenance’, including the 120 day Home Station Checks; all deeper level maintenance is carried out by Boeing in the USA. Locally, a number of Australian contractors will provide maintenance support services under the GSP contract, such as non-destructive inspection and battery maintenance.

High Frequency Modernisation (JP 2043 Phase 3A)

Deployed ADF forces are critically dependent on long range communications for command and control and for the timely dissemination of intelligence. Satellite communication (satcom) is the primary long range communications system for the ADF’s ships, aircraft and vehicles but, due to the system’s vulnerabilities, High Frequency (HF) radio, with its greater survivability, provides an essential redundant capability should satellite communications be disrupted. HF radio also has advantages of being under national control, on Australian territory, and covers a larger geographical area than any single satellite. It also provides primary communications for those platforms without satellite access.

JP 2043 was established to modernise the Australian Defence Force’s (ADF) High Frequency (HF) communications system. When fully commissioned, the Modernised High Frequency Communications System (MHFCS) will provide enhanced HF radio communications for the command and control of deployed (ADF) assets. The new system will employ automatic techniques and improved communications protocols to provide higher quality connections than have been achievable in the past without the need for skilled operators. It will also provide higher capacity communications links than the present high frequency system.

Phase 3A, which was first approved in 1996, is for the development and implementation of the modernised system and includes upgrading equipment on mobile platforms. Boeing Australia Ltd (BAL) was awarded the prime fixed price contract for the upgrade in late 1997, with May 2004 as the target date for completion. At the same time, BAL was also contracted for the operation and support of the final HF network once it is accepted into service.

But this very complex project has been dogged by delays, due in part to contract management issues including early problems in resolving contract change proposals, and the contractor’s failure to achieve project milestones, especially those associated with systems engineering and software development. The latter led the Defence Materiel Organisation (DMO) to suspend earned value payments in April 2003, with subsequent payments based on milestones achieved.

When it was evident that the target date for network implementation would not be met, the prime contract was re-baselined in early 2004. Key elements of the amended contract included:

- agreement on delays to the delivery of both stages of the project and upgrades to mobile platforms,
- changes to the scope of the project, and
- compensation to Defence for costs involved due to the delays.

As a result of contract re-baselining, the acceptance of the Core System was rescheduled to August 2004 and acceptance of the Final System was rescheduled to November 2007, representing scheduled delays of 35 and 43 months respectively.

There have been other difficulties, including those associated with the integration of the HF System into mobile platforms, involving platform specific development and integration issues that need to be resolved if the mobile upgrade program is to be finalised by 2010.

The MHFC System is being delivered in two major stages, the Core System and the Final Network. The MHFCS Core System rationalised existing facilities, providing a replacement capability for the Navy and Air Force HF communications networks, the capabilities of which include the transmission of organisational messages, voice (including encrypted), facsimile and data. Core System activities accounted for a significant proportion of the value of the Prime Contract.

The Core System was accepted in October 2004 and is currently being used to support operational military platforms. Acceptance of the system marked the inception of the Defence Communications Station (DEFCOMMSTA Australia) which operates the Fixed Network of four nodes, located at Riverina, Townsville, Darwin, and North West Cape. Each node consists of transmit and receive stations and a local management facility. MHFCS Core is controlled from the central Network Management Facility (NMF) in Canberra. The nodes and the NMF are interconnected via the Defence Secure Data Network.

The MHFCS Final Network will provide increased levels of automation and capability for enhanced information transfer capabilities to some ships, ground mobile stations and aircraft. Final Network enhancements include greater levels of automation, improved communication protocols, a higher traffic capacity, new traffic types and greater reliability.

The preliminary design review for the MHFCS Final was completed in August 2005 and the detailed design review for the fixed network system was completed in September 2006. The fixed network component remains on target for delivery in late 2007.

Following implementation of the MHFCS Final System, there will be separate primary and backup Network Management Facilities. When completed, the new system will be backwards compatible with the existing systems and will retain interoperability with Australia's allies. It will build on the survivable, reliable, long-range secure and un-secure tactical HF communications delivered by the MHFCS Core, providing an area of coverage on and over continental Australia and offshore to at least 2000 nautical miles.

A separate activity, upgrades to selected mobile platforms, is planned for completion by mid-2010, subject to platform availability. Mobile platforms to receive new equipment under this project are Chinook and Black Hawk helicopters, Armidale Class patrol boats, Huon Class MHCs, Hydrographic ships, Local Mine Countermeasures HQs, Army Strategic HF platforms, RAAF Combat Communications squadron, and designated training facilities.

ADF operators, together with contracted operators, will continue to operate the Modernised HF Communications System until acceptance of the MHFCS Final. Under the Network Operation and Support contract, BAL will provide civilian operators and maintainers for a period of five years from final acceptance of the network. There will be an ADF headquarters element for communications planning and supervision, as well as some Commonwealth personnel for the handling of sensitive information.

Of the approved Phase 3A budget total of \$619 million, cumulative expenditure to June 2006 was \$326m with another \$32m spent during 2006-07. This slight increase in planned expenditure compared to earlier estimates was due to increased activity on upgrades to mobile platforms during 2006-07.

Australian Industry Involvement (AII)

There is significant AII and local content in the HFMOD project, with a target for local content of not less than 74%. It is anticipated that this target will be over-achieved.

Hornet Upgrade (AIR 5376)

Project Air 5376 is a wide-ranging upgrade of the RAAF's fleet of 71 F/A-18A/B Hornet fighters. This will see the aircraft equipped with new sensors, mission computers, self-defence systems and weapons, as well as a proportion of the fleet undergoing a structural upgrade.

The upgrade program will equip the Hornets, augmented by 24 Super Hornets acquired under Project Air 5349, to assume the strike role currently filled by the F-111 until the F-35 Joint Strike Fighter enters operational service from about 2015 onwards. The Hornet is currently scheduled to retire in 2015-2018, but the Chief of Air Force said in March 2007 that it could remain in service as late as 2020.

The total value of Project Air 5376 (Phases 2, 2.4 and 3) is \$2.63 billion with most elements scheduled for completion in late-2009. With few exceptions, the upgrade program is based on similar avionics and structural upgrades undertaken previously or concurrently by the US Navy and Canadian Forces.

Most elements of the upgrade are being acquired from the US Navy through a US Foreign Military Sales (FMS) agreement, with the design, prototyping and testing of the various modifications primarily the job of Boeing Integrated Defense Systems, the Hornet's original designer and manufacturer. Most of the production work is being carried out in Australia.

The Hornet is a twin-engined, supersonic, multi-role fighter developed originally for the US Navy and Marine Corps and now in service with seven nations. The RAAF ordered 75 Hornets (20 of them two-seat B-model trainers) which were delivered from 1984 to 1989.

It can carry short- and medium-range air to air missiles for air combat operations and a wide range of 'dumb' bombs, laser and satellite-guided 'smart' bombs and stand-off missiles for strike and attack operations.

The Hornet is equipped with a multi-mode fire control radar which enables both air to air and air to ground operations and a suite of Electronic Warfare Self Protection (EWSP) systems.

The overall goal of the Hornet Upgrade is to improve its sensor detection and targeting ranges, its ability to resist electronic attack (e.g. the jamming of its radar and radio) and its ability to identify targets. The upgrade will also bestow greater 'connectivity', enabling Hornet pilots to exchange data with other ADF elements and coalition forces and so enhancing their situational awareness and combat effectiveness.

Phase 1, which is now complete at a cost of \$290 million, saw the Hornets equipped with upgraded radios, mission computers, Global Positioning System (GPS) navigation system, upgraded and Identification Friend or Foe (IFF) systems, and an extra data bus enabling the aircraft to operate the AIM-120C AMRAAM medium range air to air missile and AIM-132 ASRAAM short range air to air missile.

Phase 2.1, which is also complete, saw the Hornet's original Raytheon APG-65 radar replaced with Raytheon's more modern APG-73 in a program worth \$473 million. Aircraft which had undergone the Phase 1 and 2.1 upgrades deployed to the Gulf in 2003 as part of the US-led coalition against Iraq.

In Phase 2.2, which has a budget of \$588 million, the Hornets are currently being fitted with a secure Link 16 Tactical Data Link (TADIL), full colour cockpit displays and digital moving map system, an upgraded Counter-Measures Dispensing System (CMDS) for decoy flares and chaff, and the US-developed Joint Helmet-Mounted Cueing System (JHMCS).

The latter is a vital feature of the ASRAAM missile – it allows the pilot merely to turn his head to select and designate a target which the missile will then pursue once it is launched, even when the aircraft and missile are pointing in the opposite direction to begin with.

Phase 2.3, with a budget of \$331 million, focuses on the EWSP capabilities of the Hornet and will see it equipped with a new Radar Warning Receiver, Raytheon's ALR-67(V)3, a new supplementary CMDS and a new jamming system. The ALR-67(V)3 has displaced the BAE Systems ALR-2002A selected previously, necessitating a redesign of the upgrade, so Initial Operational Capability of this element will be 2009 with completion by late-2011.

Under Phase 2.4 the RAAF has acquired 37 Rafael/Northrop Grumman Litening laser and infra red targeting pods to provide a day and night precision targeting system for the Hornet. This purchase is valued at \$141 million with deliveries scheduled for 2007.

Phase 2 will also see the acquisition of a new, \$91 million flight simulator, reflecting the configuration, performance and functionality changes that have been implemented on the Hornet fleet.

Two prototypes for the Phase 2.2 modifications were completed in the USA in 2005. The rest of the fleet are being upgraded in Australia, where some 20 aircraft were completed by May 2007. This phase should be complete by the end of 2008.

Phase 3.1 began in January 2004 and should be complete by 2011, at a cost of \$123 million; this involves relatively minor structural modifications to 69 Hornets to maintain the fleet's integrity pending the start of Phase 3.2.

Phase 3.2 will see 49 Hornets undergo a further structural refurbishment involving replacement of the centre fuselage ('centre barrel') to ensure the fleet as a whole remains operationally effective until its eventual replacement by the F-35 Joint Strike Fighter. Depending on the actual withdrawal date of the Hornet a further 10 or 20 aircraft could also be refurbished. The first prototype has been modified in Canada and was scheduled to begin flight testing in Australia in late-2007. The production program is due to begin at Williamtown in October 2007 with completion by 2014.

This upgrade program should keep the Hornet operationally effective until its current planned withdrawal date of 2015-2018. But if deliveries of the F-35 Joint Strike Fighter are delayed for any reason, the Hornet will be able to serve beyond this date, though in gradually reducing numbers depending on the number of aircraft which undergo the centre barrel replacement.

While the RAAF is following a path trodden previously by the US Navy and Canadian Forces with regard to much of the Hornet Upgrade program, some aspects, especially the EWSP upgrade in Phase 2.3, are unique to Australia. Systems integration and subsequent in-country test and evaluation on this phase represent significant areas of risk on the program. However, poor aircraft condition on induction to Phase 3 and general ageing aircraft issues could also cause production delays, as could Australian workforce skills shortages.

Australian Industry Involvement (AII)

Production of the various Phase 2 and 3 modifications will be carried out at RAAF Base Williamtown by the Hornet Industry Coalition (HIC), comprising Boeing Australia Ltd, BAE Systems Australia and Canadian firm L-3 Communications MAS (formerly part of Bombardier) which is undertaking a similar centre barrel replacement program for Canada's Hornet fleet.

The HIC also carries out a substantial amount of routine airframe maintenance work, undertaken in conjunction with the upgrade work to ensure Hornet availability requirements can be met through the upgrade program.

Lightweight Torpedo (JP 2070 Djimindi)

Joint Project 2070 aims to upgrade the anti-submarine capabilities of the ADF by replacing its obsolescent Mk46 lightweight torpedo with a new-generation weapon, the EuroTorp MU90/Impact.

The new lightweight torpedo will arm the RAN's FFG and ANZAC frigates, its Seahawk (and possibly Super Seasprite) helicopter and the RAAF's AP-3C Orions. It is being acquired in a three-phase program worth \$609 million at January 2007 prices.

Integrating a new weapon with four, and possibly five, separate maritime and airborne platforms more or less concurrently is inherently complex and risky. Defence and industry agreed that an alliance approach was the most flexible, efficient and economical way to handle such a complex program. The Djimindi alliance contract was signed by Defence and the Australian industry stakeholders in 2000.

Defence selected the Eurotorp MU90/Impact in 1999, after a competitive tender. This is a versatile, highly capable weapon with superior performance to the Mk46 but requiring less logistic support. It is 3m long, weighs 300kg, has a range of greater than 10km and is designed to track and attack quiet-running submarines at depths ranging from 25m to more than 1,000m.

Phase 1 was a Project Definition Study. Phase 2 will see initial acquisition of the MU90 and associated logistic support under a contract worth \$179.6 million (at January 2001 prices), and the integration of the weapon into the various ADF platforms it will arm. This phase should be complete by June 2011.

Phase 3 will see acquisition of war stocks of the MU90, with deliveries from an Australian final assembly line starting in 2010. The production contract is worth \$233.8 million (at January 2004 prices) and it should be complete by June 2012.

Under Phase 2, all eight Anzac frigates were capable of launching MU90 torpedoes by May 2007 – new ships had the capability from the outset while older ones were retrofitted. Installation of the launchers aboard the RAN's FFG frigates and modifications to the ships'

magazines and combat systems is being carried out in conjunction with the FFG Upgrade project (reported separately).

Acceptance Test and Evaluation firings of the MU90 were originally scheduled for 2006 but the initial batch of weapons for the RAN was delayed in Europe by minor technical issues, since resolved. As a result, ship-based Test and Evaluation weapons firings will occur in 2008. Air launched firings will be scheduled as aircraft become available after modification.

The riskiest element of the project remains integration of the MU90 with its planned air platforms. Delays in the Navy's Seahawk helicopter upgrade, Project Sea 1405, and delays and the possible cancellation of the Super Seasprite helicopter ordered under Project Sea 1411 have in turn delayed the start of detailed platform integration design for the MU90 on both aircraft.

Detailed design and then integration into the Seahawks is expected to occur as part of the Seahawk Mid life Upgrade and Life Extension (SMULE) project, Phase 3 of project Air 9000. A contractor for the SMULE is yet to be selected, though completion is expected in 2010. The fate of the Super Seasprite will be decided by the Federal Cabinet by the end of 2007. If it remains in service it is likely the MU90 will be integrated with the aircraft.

The DMO's Maritime Patrol Systems Program Office (MPSPO) at RAAF Base Edinburgh will manage the integration of the MU90 on the RAAF's AP-3C Orions on behalf of the JP2070 project office. The integration work will be undertaken through the P3-Accord, a joint DMO-Industry team comprising the MPSPO, Tenix Defence and Australian Aerospace. Currently the MU90 integration aboard the AP-3C is combined with the Block IV upgrade program and should commence in the third quarter of 2009, with completion in 2010.

Weapons acquired under Phase 2 are being manufactured in Europe. However, this phase is also establishing an in-country MU90 Torpedo Final Assembly Facility, which will be used to assemble torpedoes acquired in Phase 3 and to support the torpedo through its life of type. A number of training weapons were delivered from Europe in 2005 to support initial engineering and form, fit and function checks as well as training at HMAS Cerberus and setting up of the MU90 capability at the RAN's Torpedo Maintenance and Integration Facility.

The first batch of 20 production weapons ordered under Phase 2 will arrive in Australia in late 2007. Meanwhile, all platforms integrated with the MU90 will also be capable of firing the Mk46 torpedo. There may be some issues with servicing both the Mk46 and the MU90, however, within the Torpedo Maintenance and Integration Facility. These issues are being addressed and a through-life support plan is being developed.

The main risks to the project's schedule or achievement of contracted capability are, first, the availability of platforms for integration, which is to some extent determined by other upgrade programs and operational tasking and, secondly, the performance of the MU90 during final sea trials.

Australian Industry Involvement (AII)

Alliance contracting is designed to create a formal partnership between Defence and industry in order to make the acquisition process cheaper, faster and more outcome-focused.

As a 'pathfinder' for the concept of Alliance Contracting by Defence, the DMO and industry, the Djimindi Alliance attracted scrutiny and criticism due to early delays in finalising the contract for Phase 2. These have been attributed to lack of experience in Australia of implementing this new contracting regime, but have not delayed significantly the introduction of this new capability, whose schedule is also heavily dependent on platform-related

integration and availability issues, many of them outside the control of the JP2070 project office.

However, the original Djimindi Alliance Agreement was substantially renegotiated in 2005-06 to incorporate lessons learned and better allocate work share and risk and is now proving to be an appropriate mechanism for this project. The Commonwealth Project Office continues to test the Alliance and apply lessons learnt to the Agreement.

The Djimindi Alliance partners are the Commonwealth of Australia, Thales Underwater Systems Pty Ltd and EuroTorp, itself a joint venture between French firms Thales and DCN and Italian torpedo manufacturer Whitehead Alenia Sistemi Subacquei. Thales Australia Pty Ltd (formerly ADI Ltd) is a sub-partner, manufacturing MU90 components and contributing significantly to integration with the FFG frigates.

Thales Underwater Systems (TUS) in Sydney is the sole source of MU90 homing head transducers and electronic boards for European customers. It will also assemble the torpedoes acquired under Phase 3 of this project. This assembly facility will provide a sustainable, local through-life support capability for the MU90.

The ANZAC Alliance (Commonwealth of Australia, Tenix Defence and Saab Systems) and the Djimindi Alliance formed an integrated project team to successfully integrate the MU90 onto the Anzac-class frigate. And another alliance team, the P3 Master Accord, comprising the Commonwealth of Australia, Tenix Defence and Australian Aerospace, will undertake MU90 integration on the AP-3C Orion.

M113 Upgrade (LAND 106)

This project will see 350 of the Army's ageing, Vietnam-vintage M113 Armoured Personnel Carriers (APC) undergo a significant upgrade. The role of an APC is to carry soldiers into battle protected against landmines, shrapnel and small arms fire. A major advantage of tracked vehicles such as the M113 is its ability to traverse extremely rough and difficult terrain and to advance close behind artillery fire support. An APC is not a fighting vehicle because it doesn't have the armament or levels of protection to engage in direct combat with other armoured vehicles.

The upgrade package is based on one developed by the German company FFG for Germany and Danish M113, and will see Australia's M113s fitted with improved mine blast protection. It will also provide appliqué armour outside and spall liners inside to better protect the occupants against guns and anti-armour missiles.

The vehicles' mobility will be enhanced through replacement of the engine, drive train and suspension. Vehicle habitability will be improved through heat insulation in the passenger compartment, along with better seating and equipment stowage. Some 271 vehicles are being "stretched" by one metre to provide more room.

A new Australian-designed and manufactured turret will provide for greater and more accurate firepower from the vehicle's 0.50in heavy machine gun.

There have been several delays over the past 14 years. Getting Project Land 106 under way was a protracted affair. There has been difficulty in achieving key milestones. Once the project was re-approved following the 2000 Defence White Paper, three stages were planned in order to manage development risk:

Stage 1 - two vehicles to demonstrate the concept, undertake gross level performance testing, and obtain user feedback. This began in 2002.

Stage 2 - 14 Initial Production Vehicles (IPVs) to prove manufacturing processes and perform complete performance and reliability testing. Due for completion in 2006, but presently delayed.

Stage 3 - full production, which is currently scheduled for completion in late-2010.

A number of technical problems were identified during the Stage 1 and Stage 2 testing, relating to engine overheating, vibration induced failures, and transmission and brake failures. Design changes have been made to correct these problems, but have resulted in project delays.

The scheduled initial in-service date, with a company group of soldiers fully equipped and trained to use the upgraded M113, was December 2006. Due to the problems discovered during initial testing, and more recently as a result of significant brake problems discovered during the first Reliability Qualification Testing (RQT), deliveries will not now begin until November 2007.

This date remains subject to successful completion of RQT and any rectification and follow-up testing that may be required – this would necessarily impact on the start of full-rate production.

Tenix have investigated the cause of the brake problem and have developed modifications to cure it. RQT, which is the last of the formal tests the upgraded design must pass, was scheduled for completion in May 2007, at which point Defence will assess the overall performance of the vehicle's brakes and its new turret. The DMO warned in May, however, that ongoing brake problems could delay service entry to early-mid 2008.

The turret has had a protracted development but, according to the DMO, is expected to meet Army's requirements. Having successfully passed its Critical Design Review, the turret is one of the vehicle sub-systems under scrutiny in the RQT program. It is a one-man system carrying a single 0.50in cal machine gun and a Thales Maxi gun sight. The latter is designed for observation and more accurate gunnery by day and night; it uses a 6x magnification day sight and 4x magnification image intensifying night sight and a weapon mount that enables precise aiming.

Pending completion of RQT and formal acceptance of the vehicle design by the DMO, Tenix has begun assembly of the Stage 3 production vehicles at its own financial risk. The build will comprise 14 APC variants, one Armoured recovery variant and one Armoured Fitter's variant. This should help recover some of the schedule slippage, but hasn't prevented the Commonwealth from claiming liquidated damages from the company. Details of the prime contract are commercial in confidence, but the DMO states that damages may be received in financial compensation or some other agreed alternative compensation.

Planned life of type for the upgraded vehicles is 2020. Despite the delays in the project, no major components or equipment have required replacement as a result of obsolescence. The upgraded M113 will be issued to units of 1 Brigade: 5 RAR, 7 RAR and 1st Armoured Regiment. Final deliveries are expected in 2011.

Current budget approval is for \$585m. According to the DMO there has been no real cost increase, with the only change being for inflation and exchange rate variations.

According to the DMO, the major risk facing the project is schedule slippage due to any unexpected reliability problems arising from the current RQT phase. Anything that might require further design work to correct would lead inevitably to further project delay.

Australian Industry Involvement (AII)

According to the DMO, Australian content will be 48% of contract value and comprise

vehicle design and testing, turret design and manufacture, external fuel tank design and manufacture, and vehicle assembly. All 350 upgraded M113s will be produced at the government-owned, Tenix-operated, facility at Bandiana, near Albury-Wodonga. In-service support will be centred on this complex under the same model currently used to support the M113A1.

Maritime Surveillance & Response (AIR 7000 Phases 1A & 1B)

AIR 7000 has two distinct phases. Phase 1B is for the introduction of acquisition of High Altitude Long Endurance Unmanned Aerial Systems for maritime patrol and other surveillance that will complement the capabilities of manned systems to be provided under Phase 2B, currently provided by AP-3C Orion aircraft. While the project as a whole will be focused on the acquisition of capabilities centred on maritime patrol and response roles, it will also support electronic and land surveillance roles.

AIR 7000 will consider the future of the AP-3C in the context of future ADF requirements for maritime patrol and response. This will include the exploration of a broad range of options including aircraft refurbishment/re-manufacture or replacement, and the use of Unmanned Aerial Systems (UAS) as an adjunct to manned platforms.

Phase 1B is in the process of considering options leading to the acquisition of a high altitude long endurance multi-mission Unmanned Aerial System (UAS) that can perform all-weather, long endurance surveillance and reconnaissance tasks over maritime and land environments. The MUAS will provide Defence with an important surveillance capability and could play a significant role in the patrolling of such areas as the North West Shelf, the sea-air gap to the North as well as Australia's Antarctic territories. This capability is an essential adjunct to the manned capability to be acquired under Phase 2B.

In July 2006 First Pass approval was granted for Phase 1B to allow Defence to commence formal negotiations to participate with the United States Navy in the cooperative development of a UAS capability. As a result in January 2007 Australia entered into a Program Arrangement with the USN concerning Pre-System Development and Demonstration Cooperation in Development of the Broad Area Maritime Surveillance (BAMS) Unmanned Aircraft System. This will enable Australia to determine whether or not the US BAMS solution meets Australian requirements

The cooperative development of the UAS may provide significant global supply opportunities for Australian industry as well as an influence in the development of the BAMS program. Government will evaluate these benefits when making a decision in late 2008 on whether or not to enter into a cooperative program with the US Navy.

The BAMS program

In mid-March 2007, the USN (NAVAIR) released the final Request for Proposal for the BAMS Unmanned Aerial System (UAS) program which included the Australian requirement as a subset. The solicitation closed on 30 April 2007. According to the RFP's preamble, the BAMS UAS will provide a persistent maritime, intelligence, surveillance, and reconnaissance (ISR) data collection and dissemination capability to the USN fleet, serving as a force multiplier for the Joint Force and Fleet Commander, enhancing situational awareness of the battlespace, and shortening the sensor-to-shooter kill chain. The two main contenders for the UAS capability are believed to be Northrop Grumman with a variant of the RQ-4 Global Hawk, and Lockheed Martin and General Atomics with a variant of the MQ-9 Mariner. Another possible contender is Boeing with the Gulfstream 550.

Australian BAMS UAS options provide for the expansion of the System Development and Demonstration (SDD) program to include the design, development and demonstration of a

solution that meets Australia's objectives. For the purposes of the Australian objectives, In Service Date (ISD) is defined as the year in which the first elements of the capability are planned to enter service, though not necessarily be ready for operational deployment.

The first elements of capability consist of an air vehicle, a fully populated payload, communication suite, mission planning, simulation and mission control system. ISD will be achieved in 2013. The Australian IOC for the UAS is defined as one base unit with sufficient assets, technical data, training systems, and enough spares and support equipment to operationally support three periods of 24 hr surveillance per week. IOC will be achieved in 2015.

With the US Navy's decision on the selection of the BAMS UAS on target for September 2007 and based on a competitive system integrator selection process, the program will enter the SDD phase during FY2008 with a PSI contract award expected in the first quarter (ie late 2007).

Around that time, the Air 7000 project office will report the results of the pre-SDD phase to the Capability Development Executive for Intermediate Pass approval by Government in late 2007 or early 2008. This would lead to:

- A go-ahead (or otherwise) to exercise the Australian option
- Signing of a MOU with the USN (which will probably include Australian technical representation on the BAMS IPT)
- Selection of the Australian Industry Capability Partner (see below).

It is anticipated that Second Pass approval will be granted in 2011, which coincides with initial production in the US, and will herald the Australian acquisition phase.

In an RFT issued on 14 March 2007, Defence sought responses for the role of an Industry Capability Partner (ICP), and for the initial contract for the design of the Australian unique elements of the UAS. The ICP's main focus will be in developing the Integrated Ground Environment (IGE), the provision of in-service support and integration of airborne systems not provided via BAMS. The project is expected to provide significant opportunities for Australian industry. Defence intends to engage closely with Australian industry on the development of an Integrated Ground Environment for UAS control and fusion of sensor information.

The Industry Capability Partner and its team of Australian subcontractors will work directly with the US prime contractor and his subcontractors in bidding for global supply opportunities for the BAMS unmanned system. They would also need to negotiate integration and other opportunities for the incorporation of Australian unique elements such as radar, IFF and so on.

There should be opportunities for Australian industry in the development of the IGE for MUAS control and fusion of sensor information. The IGE's many elements including UAS mission control, mission analysis, planning and replay, an intelligence support and dissemination facility, as well as part task simulators.

AIR 7000 Phase 2B is intended to provide the manned component of the ADF maritime patrol capability that may involve upgrade or replacement of the AP-3C Orion aircraft. The life-of-type for the AP-3C is being driven by the increasing cost of addressing airframe fatigue and corrosion, aircraft system supportability and mission system obsolescence. The airframe and aircraft systems, including engines, hydraulics, electrical and fuel systems will become more costly to support as the aircraft ages.

Although mission system obsolescence is being addressed under Project AIR 5276, a further upgrade may be required to extend its useful life. In December 2006 Defence signed a nine-year contract worth \$201 million with Australian Aerospace for deeper maintenance of the AP-3C fleet through to the planned withdrawal of the aircraft in 2015.

Australia has been following the USN's P-3 replacement program which saw the Boeing 737-based P-8 Poseidon selected in July 2004. The P-8 has been designed to operate in conjunction with the BAMS unmanned aerial system, so participation in the manned component of the BAMS program would seem logical if the US unmanned aerial system suited AIR 7000 requirements.

It is anticipated that Phase 2B will receive First Pass approval in mid 2007 when a decision will be made on whether Australia will participate in the P-8 Poseidon program to meet the manned component of AIR 7000.

Boeing's P-8 contract award was for the manufacture of five trial aircraft. The Preliminary Design Review was successfully completed in late 2005 and Critical Design Review is planned for early 2007. Initial low rate production is scheduled to start in 2008 and full scale production, at a rate of 12 to 18 aircraft per year, in 2012. The planned Initial Operational Capability (IOC) date is 2013.

As yet no decision has been made as to the numbers of aircraft required to replace the capability delivered by the AP-3C but the RAAF and DSTO are currently undertaking Force Mix studies to determine the numbers of each platform type that will be needed.

Australian Industry Involvement (AII)

Both phases are expected to offer significant opportunities for Australian Industry Involvement (AII). Defence says it intends to engage closely with Australian industry on the development of an Integrated Ground Environment (IGE) for MUAS control and fusion of sensor information. Operator training, including through simulation training together with long term support of Unmanned Aerial Systems, are among other opportunities for local industry involvement.

The manned component of AIR 7000 is expected to provide opportunities on a par with those currently enjoyed by industry in the support and upgrade of the current AP-3C fleet including the supply and integration of Australian unique requirements such as EWSP.

New Air Combat Capability (AIR 6000)

The New Air Combat Capability to be acquired under Project Air 6000 will be Australia's most expensive defence procurement to date, with an anticipated budget of \$11.5-15.5 billion according to the 2006 Defence Capability Plan.

Subject to formal second pass approval by the federal cabinet in 2008, Project Air 6000 will see the acquisition of up to 100 F-35A Joint Strike Fighters (JSF) that are intended to replace the RAAF's F-111 strike aircraft and upgraded F/A-18 Hornet fighters.

The government announced in June 2002 that Australia was joining the System Development and Demonstration (SDD) phase of the JSF program. In December 2006 Australia became one of the nine partner nations that signed the JSF Production, Sustainment and Follow-On Development (PFSD) Memorandum of Understanding (MoU). This marked the formal start of production development of the JSF, and second pass approval notwithstanding, the RAAF remains committed to acquiring the F-35A under Project Air 6000.

The JSF is a so-called fifth generation stealthy, single-seat, single engine multi-role aircraft. It is being developed simultaneously in Conventional Take-Off and Landing (CTOL), Short Take Off Vertical Landing (STOVL) and carrier-borne (CV) variants by Lockheed Martin in the USA – these variants are designated F-35A, -B and -C, respectively.

Each variant has common avionics, sensors and engines to reduce development and maintenance costs associated with producing and then maintaining three different aircraft types. Differences in airframe structure and configuration have been kept to a minimum (allowing for each variant's markedly different roles) for the same reason, though this has complicated the design and development process.

The F-35's avionics enable the fusion of target, threat and friendly force data generated by onboard and off-board sensors to provide pilots with unprecedented levels of individual and shared situational awareness. This, combined with the aircraft's stealth, holds out the prospect of very high levels of combat effectiveness and survivability in a high-threat environment.

The F-35A is intended to maintain Australia's regional air combat superiority throughout its 30-year life of type. It will be employed in air defence and strike operations. The 2004 ASPI policy report "A Big Deal" points out, however, that the F-35A's ability to achieve this depends on the complex interrelationship between key factors such as the threat environment, JSF weapon system characteristics and enabling key ADF combat capabilities such as new long-range strike and anti-ship missiles, and the RAAF's new Wedgetail AEW&C aircraft (Project Air 5077), aerial refuelling tankers (Project Air 5402) and enhanced command and control system (Project Air 5333). (These projects are reported separately here.)

The first three squadrons of F-35As will be acquired under the combined Phases 2A and 2B of Air 6000. Phase 2C may acquire a fourth squadron or possibly Uninhabited Combat Air Vehicles (UCAVs). The decision on Phase 2C may be undertaken concurrently with the decision on Phase 2A/B in late 2008 or deferred – possibly until about 2014-15.

The current SDD phase will see development and flight testing of 14 F-35s (as well as six ground test vehicles) in all three variants followed by Low Rate Initial Production (LRIP) of approximately 500 aircraft, followed by Full Rate Production (FRP) of as many as 4,000 more for the partner nations and other export customers.

Criticism of Australia's commitment to the F-35 hinges on the fact that the production aircraft had yet to make its maiden flight when the decision was taken, the flight test and integration program for the highly complex and integrated avionics and sensor suite had yet to begin, the performance of the aircraft (including its essential stealth capability) had not been verified, and the price the RAAF will pay for the F-35 is still uncertain.

The JSF program was delayed by over a year for a re-design to cut the weight of the aircraft, particularly the STOVL F-35B which is being developed for the US Marines, UK and Italy. However, the Critical Design Reviews (CDR) for the CTOL and STOVL variants were completed successfully in early-2006.

First flight of the first F-35A test article (manufactured as part of the SDD program) took place in December 2006. Flight testing has progressed well so far. The second aircraft to join the flight test program, an F-35B STOVL variant, will fly in early-2008.

After approving funding for long-lead items for the first LRIP batch in early 2006, in April 2007 the US Under Secretary of Defense for Acquisition, Technology & Logistics authorized the start of F-35 Low-Rate Initial Production. Delivery of Full Rate Production aircraft is due to begin in 2015.

Acquisition of the first RAAF aircraft has been deferred by about a year to 2013 as part of the fifth LRIP batch. The RAAF's first F-35 squadron is planned to undertake its initial training in the USA before standing up formally and achieving Initial Operational Capability (IOC) in Australia in 2015.

The F-35's avionics and sensor suite is being developed incrementally in successive 'Blocks'. If development of Block 3 avionics is delayed, the RAAF could declare IOC with Block 2 avionics, which the NACC project office states bestows a capability that is still superior in almost all respects to the F-111 and upgraded Hornet in both air to air and air to ground modes. The US Marines currently plan to declare IOC with Block 2 Avionics in 2012.

Lockheed Martin states that F-35 JSF software development program is on schedule and demonstrating significant progress and maturity. The JSF program as a whole will see the development of 18.7 million software lines of code (MSLOC), which includes all software for flight controls, mission systems, prognostics and health management, offboard planning, autonomic logistics and training. As of March 2007 software development was on schedule with 41% complete versus 42% planned.

The most basic software block, Block 0.1, is 96 per cent complete and flying successfully on the test aircraft, demonstrating high levels of reliability and maturity – albeit without the major sensors and mission systems operational. Block 0.5 will provide the initial mission system capability and will fly in early-2009. This is currently 44 per cent complete, with 3.54 MSLOC delivered.

Notwithstanding recent good progress, Project Air 6000 still faces several major risks - in particular, the avionics flight test and software integration program. This is being mitigated by the use of an extensive integration laboratory in Fort Worth and a converted Boeing 737 airliner equipped with a full suite of F-35 avionics, sensors and processors for airborne test and integration. This began flying in early-2007, while some components of the F-35's avionics have been flying for over a year on other test beds.

Project Air 5349 – Bridging Air Combat Capability

Regardless of the cause, any significant delay to the JSF program would impact severely on the RAAF. With its F-111s due to retire in 2010, its upgraded Hornets must carry the air defence and strike load until 2015-18, and possibly even later than this. The potential for significant delay has triggered the so-called Bridging Air Combat Capability project, Project Air 5349. The RAAF will replace its F-111s in 2010 with a single squadron of 24 Super Hornets; these will serve until at least 2020 at a total cost of over \$6 billion, of which \$3.9 billion represents the direct cost of the aircraft, weapons, facilities upgrades and aircrew training.

The Super Hornets are being acquired 'off the shelf' under a US Foreign Military Sales agreement which was signed in May 2007. To reduce schedule and capability risk, the aircraft will be essentially identical to the then-current build US Navy Block II Super Hornets and will be equipped with the same weapons and infra red/laser targeting systems. They will enter service in 2010 with Initial Operating Capability by the end of that year.

The 24 Super Hornets will provide additional strike (especially maritime strike) and air defence capabilities pending the arrival of the F-35A. Their Active Electronically Scanned Array (AESA) radars and data links bestow high levels of shared and collective situational awareness and will provide the RAAF with a bridging path to the superior sensor and communications capabilities of the F-35A.

F-35A pricing

There has been much confusion over the price Australia will pay for its F-35A. The quoted

price for an F-35A is US\$47 million in FY 2002 dollars – FY 2002 is the baseline from which real variations in program cost (other than inflation and factors outside the control of the project) are measured. US\$47 million is the average Unit Recurring Flyaway (URF) price for the total number of F-35A CTOL aircraft built over the life of the program. The URF price includes the airframe, engine and mission systems, but does not include development cost, support systems, initial spares, technical data or facility construction.

Aircraft built very early in the production run will be considerably more expensive while later ones will be cheaper. Lockheed Martin expects the unit price to fall to the average URF price by about 2016, so Australia's aircraft, on average, should cost close to (or slightly more than) the US\$47 million average (at '02 prices). The actual price to be paid will be determined by applying 'current year' economic factors that typically include full procurement costs (including training, spares, support equipment, and facilities, but not R&D costs).

Australia will not sign a contract with Lockheed Martin for the JSF. The US Department of Defense, under the terms of the Production Sustainment and Follow-on Development (PSFD) MoU, will negotiate with the company on behalf of all the partner nations. The Pentagon has traditionally ordered aircraft on a year by year basis, but Lockheed Martin and the JSF Joint Program Office in Washington DC are studying an alternative arrangement where Australia and other international partners order all of their aircraft in a single bulk purchase in order to achieve economies of scale and a lower price.

Signature of the PSFD MoU also marked the resolution of some critical outstanding issues relating to industry participation and Australian access to technologies critical to a sovereign, self-reliant operational capability. The latter had been a serious bone of contention for Australia and other JSF international partners and threatened to stall PSFD negotiations and eventual signature of the MoU.

Entry into the PSFD MoU commits Australia to a pro-rata contribution for shared costs including production tooling and management fees. The exact amount is yet to be determined, but is expected to be around 3% of the shared costs assuming that Australia buys 100 aircraft. But as a Partner in the PSFD phase Australia will have increased representation in the JSF Program Office, which is important in ensuring that Australian PSFD requirements will continue to be met as the program develops.

Importantly, Australia will be involved in defining the scope of the first upgrades to the aircraft after the current development phase is complete. Upgrades, mainly to the avionics and software, will be made every two years to enhance performance, improve affordability and meet future threats.

Australian Industry Involvement (AII)

An important reason for joining the SDD phase of the JSF program was to provide opportunities for Australian companies to participate in the largest military aircraft project ever undertaken. The Australian government invested US\$150 million to become a Tier 3 participant in the SDD phase of the program.

To date, 22 Australian companies have won JSF contracts worth over \$140 million in the SDD phase. Contracts won in this phase generally position the contractor to carry out the same work on the 500-aircraft LRIP phase and subsequently the 4,000-aircraft FRP phase. But fresh opportunities for qualified Australian companies are likely to emerge when Lockheed Martin and its principal partners and suppliers seek second sources for F-35 components and sub-assemblies as production ramps up.

The NACC Integrated Project Team (comprising Defence and the Department of Industry) has worked with Lockheed Martin and its industry partners to develop an Industry

Participation Plan that identifies good long-term opportunities for Australian industry over the life of the Program.

In March 2007 Lockheed Martin and its principal industry partners, BAE Systems and Northrop Grumman, announced that Australian companies will have access to manufacturing, supply and sustainment opportunities worth over \$9 billion through the life of the JSF program. Contracts will be awarded on a best value for money basis, however – there are no firm guarantees. More sober industry estimates of Australia's share of the JSF program are between \$3 billion and \$4 billion.

Opportunities include the possible manufacture of 200 upper and lower wing skins and the manufacture of some 700 vertical tail structures for Lockheed Martin and its partners, Northrop Grumman and BAE systems. Australian engineering firms will also be able to bid for over A\$1 billion dollars worth of high-speed precision machining work on critical airframe and engine components, while Lockheed Martin is considering a proposal to source high-technology infra red decoy flares from a new manufacturing plant near Melbourne.

To support the global JSF fleet in service, Lockheed Martin is establishing a JSF Autonomic Logistics Global Sustainment (ALGS) system, supported by an Autonomous Logistics Information System (ALIS) which will provide an information infrastructure that records and analyses the behaviour and health of each F-35 aircraft, providing logistics and fleet management information for every F-35 operator globally.

The F-35 ALIS was activated in April 2007 at Lockheed Martin Aeronautics headquarters in Fort Worth, Texas and is now supporting the first test aircraft.

A key aim of the ALGS is to optimise the use of Original Equipment Manufacturers (OEMs) to minimise support costs. Essentially, Lockheed Martin will be responsible for providing in-service support for the global F-35 fleet, to a level negotiated with the individual customers and subject to sovereign self-reliance considerations.

The ALGS could include Regional Support Centres (RSC) in strategic spots around the world. Self-reliant support of the F-35 in Australia is a fundamental requirement for the RAAF, but logistics support for the JSF is a complex issue as new technologies in the JSF, including stealth, and anticipated improvements in the reliability of components and systems mean the JSF's support demands may be quite different from those of legacy aircraft.

The JSF Industry Coalition (led by BAE Systems Australia) and the NACC IPT are undertaking a study, via the JSF Program Office and Lockheed Martin, to specify the in-country support capabilities needed to satisfy Australia's strategic requirements, and the timeline for establishing key parts of it. The study is planned to be completed by the end of 2007 and will inform the business case for whether Australia can host a competitive RSC.

According to the DMO, there is a need to strike the right balance between ensuring sovereign support requirements are met on the one hand and maximising affordability on the other.

Project Overlander – Field Vehicles & Trailers (LAND 121 Phases 3A & 3B)

Project LAND 121 (Overlander) is a multi-phased project to provide the Australian Defence Force (ADF) with field vehicles and trailers (FV&T) beyond the life-of-type of the current fleet. The ADF fleet of field vehicles and trailers is the backbone of its war fighting force and sustainment structure. The vehicles are used to transport personnel, combat supplies, materiel, replacement combat systems and to evacuate casualties. They also serve as platforms and

prime movers for command, control, communications, computer and intelligence (C4I) systems and for numerous weapon systems.

The current FV&T fleet consists of a variety of light and lightweight Perentie Land Rovers, Unimog 4-tonne trucks, Mack 8-tonne trucks, International S Liner prime movers and general service trailers. Current fleet vehicle numbers comprise 1100 (heavy), 2150 (medium), 3950 (light) and 3200 trailers.

The Overlander FV&T replacement solution aims to reduce whole of life costs, to rationalise vehicle types and numbers, to incorporate emerging and legislative design features and to capitalise on new ideas from industry. A major feature of the requirement will be a reduction in whole of life costs, through system reliability, configuration management systems and the provision of effective diagnostic and prognostic capabilities. Fuel consumption will be an important aspect.

The requirement comprises six generic fleet ranges, with approximately 15 functional vehicle types. In addition, 18 modules or shelters are to be procured along with nine trailer variants.

The project has two main phases. Phase 3A, which received first pass approval in mid-2004 and with second pass slated for June 2007, is planned to commence the replacement of the current FV&T fleet in certain high readiness units with some 1300 or so vehicles which are to be delivered in-service between 2009 and 2011. The number of vehicles and trailers to be acquired under Phase 3 depends on the government-endorsed capability option and overall project affordability. It is the ADF's intention that the vehicles operate for a minimum of 15 years and an additional 15 years is desirable.

Phase 3B will follow on from Phase 3A and is aimed at completing the replacement of the ADF's FV&T requirements, with between 4000 to 7000 vehicles during 2012 and 2015. There is a cost cap of approximately \$3 billion on Phases 3A and 3B collectively.

The current intent is that Phases 3A and 3B will be linked so that in pricing the 3A requirements tenderers agreed pricing mechanisms and controls for the following Phase 3B requirement. It is emphasised that the whole of life costs across the entire Phase 3 requirement will drive the outcome of Phase 3A selection.

In support of this strategy, second pass approval (the funding go-ahead) for Phase 3B is now scheduled for mid-2008, approximately one year after second pass approval is granted for Phase 3A. It is anticipated that the Phase 3A contractors will be the same as those for Phase 3B.

Separate RFTs for Phase 3A were released on 13 December 2005, closing mid-May 2006, for the following three categories of vehicles.

- Medium/Heavy MOTS vehicles and support — a restricted tender for the acquisition of medium weight (5 ton) vehicles and modules; medium (10 ton) vehicles including recovery and semi-trailer vehicles and modules; heavy (16.5 ton) vehicles including recovery and semi-trailer vehicles and modules; and truck tractor (35 ton) vehicles. This tender was restricted to the following nine shortlisted companies: ADI Limited (now Thales Australia), Daimler Chrysler Australia-Pacific, General Dynamics Land Systems Australia, MAN Nutzfahrzeuge AG, Mack Trucks Australia, Scania Australia, Stewart & Stevenson, Tenix Defence, and Terex Corporation.
- Lightweight/Light MOTS vehicles and support — an open tender for the acquisition of lightweight (1 ton) vehicles and light (2 ton) vehicles and their various task modules.

- Trailers—an open tender for trailers (cargo) and their through-life support comprising lightweight trailers (750kg), light trailers (1250kg), medium-weight trailers, and medium trailers.

The delivered equipment will need to maintain or enhance current capability through improved availability, mobility and better personnel protection. A significant proportion of the acquired fleet will need to be fitted for (but not with) Survivability Enhancement Kits to protect their crews. Other improvements over extant capabilities sought through these requirements include the provision of communications and tracking systems and higher payloads and systems throughput.

The initial evaluation of tenders was completed by late November 2006. A draft source evaluation report and tender evaluation outcomes have been prepared by the Options and Tender Evaluation Board (OTEB) in March 2007. OTEB recommendations were presented to the OTE Steering Group by late March. The second pass business case is now being developed for submission to government, recommending a shortlist of two contenders in each vehicle category. Second pass approval is anticipated by June 2007.

Australian Industry Involvement (AII)

It is anticipated that Phases 3A and 3B will provide opportunities for Australian industry in the production and design activities, and in the production of components. That involvement may lead to global market opportunities.

Other local activities will include ADR modifications, production of trailers, if commercially competitive, and the production and integration of specialist shelters/modules to be fitted to the cab/chassis being sourced from overseas, again if commercially competitive.

Other AII activities include project management, facilities construction, training and production of technical documentation.

The industry requirements will be based around developing and maintaining sufficient capability within Australian industry to undertake a full range of through-life maintenance and support activities to the maximum extent possible.

SECTION 9 –THE FINANCIAL STATEMENTS EXPLAINED

Section 9.1: Defence Resourcing

Total Defence Resourcing has been clearly summarised in Table 2.1 in the PBS. While much of the Defence budget can be understood without recourse to the financial statements, it is through the financial statements that the key financial aspects of the budget are consolidated, including the impact on future years. Therefore it is useful to understand the relationship between Total Defence Resourcing as presented in the PBS and the budgeted financial statements.

Table 2.1 [PBS p.20] shows that Defence receives funding in a number of different ways, and pays money back to government in several ways as well. The government purchases some 28 Outputs from Defence, which are grouped into six Outcomes. A seventh Outcome/Output covers administered appropriations. It should be noted that Defence will consolidate into three Outcomes and these will be reported at Portfolio Additional Estimates 2007-08.

The price government pays for these Outputs is the Output Appropriation. Additional funding for the Outputs comes from Defence's own source revenues. Defence also receives funds to invest in capital assets. This comes from the government's equity injection and from net capital receipts, being the proceeds of sales of existing assets after capital withdrawal by government.

PBS Table 2.1: Total Defence Resourcing

Serial	2006-07 Estimated Actual \$'000	2007-08 Budget Estimate \$'000	2008-09	2009-10	2010-11
			Forward Estimate \$'000	Forward Estimate \$'000	Forward Estimate \$'000
Departmental					
1	17,157,664 Revenue from Government for Price of Outcomes	19,170,126	19,065,666	19,286,597	19,707,273
2	1,998,277 Equity Injection	2,062,804	3,403,841	4,430,996	4,550,650
3	19,155,941 Total Revenue from Government (1+2)	21,232,930	22,469,507	23,717,593	24,257,923
4	685,050 Own-Source Revenue ⁽²⁾	709,226	726,150	742,979	763,998
5	57,603 Net Capital Receipts	56,919	56,221	39,011	37,658
6	742,653 Sub-Total (4+5)	766,145	782,371	781,990	801,656
7	19,898,594 Total Departmental Funding (3+6)	21,999,075	23,251,878	24,499,583	25,059,579
Administered					
8	2,817,000 Administered appropriation	2,802,468	2,935,854	3,042,915	3,159,693
9	22,715,594 Total Defence Resourcing (7+8)	24,801,543	26,187,732	27,542,498	28,219,272

The key sources of funding for Defence are explained in more detail as follows:

Revenue from Government for Price of Outcomes (Outcomes Appropriation): In 2007–08 the government will appropriate \$19,170 million towards the price of the Defence Outputs. This is the 'Price to Government of Defence's Outcomes'. In 2006–07 the projected appropriation for outputs is \$17,221 million (inclusive of \$63.998m in accrued appropriation revenue). It appears as Appropriations from Government in Revenue in the Budgeted Departmental Income Statement PBS Table 7.1.

Equity Injection: In 2007–08 the government will appropriate \$2,062 million to supplement investment in specialist military equipment (\$4,614 million) and property, plant and other equipment (\$952 million). The equity injection is shown in the Budgeted Departmental Statement of Cash Flows (PBS Table 7.3) and also appears in

the Capital Budget Statement (PBS Table 7.5), although the amount shown here is less than the entitled amount, hence the difference in figure 9.1.1.

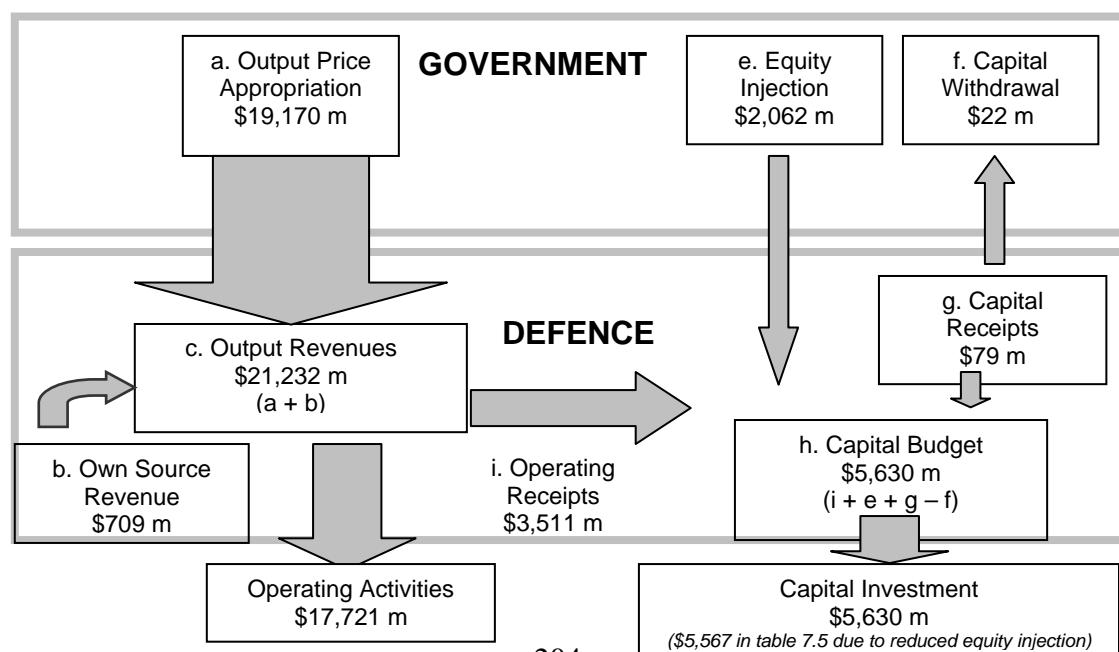
Own Source Revenue: In 2007-08 Defence has budgeted to raise \$709 million of ‘own source’ revenue which is made up of sale of goods and services (\$643 million) and other revenue (\$66 million). In 2005–06 a total of \$635 million was raised including \$121 million in housing and other property rentals, \$35 million in rations and quarters charged to personnel, \$45 million from fuel sales to foreign governments, \$301 million of revenue from other government agencies and \$133 million from sales of other goods and services. With the cessation of the agency incentive banking scheme in 2003 Defence is no longer able to earn interest on cash balances and this is reflected in the 2007-08 budget. Own source revenue is included as Revenue in the Budgeted Departmental Income Statement PBS Table 7.1.

Net Capital Receipts: In 2007–08 Defence have budgeted to receive \$79 million in capital receipts from the sale of assets (mainly property, plant and equipment). The capital receipts appear as cash receipts from investing activities in the Budgeted Departmental Statement of Cash Flows PBS Table 7.3 and within the Departmental Capital Budget Statement PBS Table 7.5.

Defence will only retain about \$57 million of these sales, after the government takes \$22 million through a capital withdrawal in 2007-08. This is the mechanism through which the government as owner takes back some of its equity in Defence and is used when assets like property are sold.

Figure 9.1.1 shows the flows of these resources between the government and Defence. This illustrates the linkage between output revenues (exclusive of assets now recognised) and the capital budget via operating receipts. These operating receipts include the left over cash from output revenue (price) due to non-cash expenses like depreciation and inventory consumption. (Figures not exact due to correction for GST, banking and timing shift.)

Figure 9.1.1 Defence Funding Schematic



Accrual Accounting

Accrual accounting is *activity* driven. It accounts for all resources when they are consumed and not necessarily when the corresponding cash is transacted. This can result in non-cash expenses such as depreciation and inventory which represent the consumption of resources previously paid for. Accrual accounting also includes expenses associated with unpaid obligations like creditors and employee entitlements.

The first step to understanding accrual accounting is to understand the language used. Some of the terms are obvious but others are not.

At the most basic level is the **resources** that are used in Defence. This includes **cash**, **inventory** (e.g. bullets, soap and uniforms), **capital assets** (e.g. tanks, buildings, and even software), the labour of staff and goods and services from the market place.

The earning of income is called **revenue**. Defence earns revenues through sales and the output appropriations from the government. The consumption of a resource is called an **expense**.

Some resources are paid for and used within the accounting period (eg salaries); other non-cash expenses arise through the use of resources previously paid for called **assets** such as **inventory**, which is consumed. Another non-cash expense arises when **capital assets** are consumed through their **depreciation** in value over time. This yields an annual expense roughly equal to the value of the capital asset divided by its economic life. The difference between **revenues** and **expenses** is called the **net operating result**. A positive operating result is a profit, and a negative result is a loss.

The subtraction of expenses from revenues is done in the **Budgeted Departmental Income Statement** [PBS Table 7.1], more commonly called the Operating Statement or Profit and Loss Statement. Resources that are presently owned are called **assets**. These can be either financial (e.g. cash, investment or monies owed) or non-financial (e.g. capital assets, inventory). Obligations to pay for resources in the future are called **liabilities** (e.g. accumulated employee entitlements and bills to be paid). This includes liabilities associated with non-cash related expenses such as increases in employee entitlements (long service leave) which have arisen through the use of resources which have not been paid. The difference between **assets** and **liabilities** is the **net assets or equity**.

The subtraction of liabilities from assets to calculate equity (net assets) occurs on the **Budgeted Departmental Balance Sheet** [PBS Table 7.2]. The balance sheet captures resources not yet used (**assets**) and resources used but not yet paid for (**liabilities**).

Even in the accrual framework cash is important. The **Budgeted Departmental Statement of Cash Flows** [PBS Table 7.3] often called the cash flow statement tracks the flow of cash through Defence. It reports on the cash received and used for the **operating activities** that deliver the Defence outputs. It also reports on the cash used for **investing activities** like the purchase of tanks, buildings and other capital assets, as well as the cash received from the sale of assets. Finally it reports on the **financing activities** that include cash received from, and paid to, government. This includes the equity injection and capital withdrawal. These peculiar artefacts of the framework are explained on the next page.

The Defence financial statements also include a Capital Budget [PBS Table 7.5] that reports the **expenditure** of cash on capital assets. It also reports on how the capital assets are funded and reports on the cash **receipts** gained from the sales of capital assets, and the various payments to and from government associated with capital investment. As with the cash flow statement, all the entries refer to cash transactions. The Capital Budget provides insight into the investing and financing aspects of the Statement of Cash Flows.

9.2 Budgeted Financial Statements Explained [PBS Chapter 7]

The financial statements provide some insight into the planned financial performance of Defence for the 2007-08 year as well as the impact on future years.

While public sector agencies such as Defence do not have a profit imperative, it is still useful to discuss the financial statements as if Defence was a profit-making company. Defence, as an organisation, must manage such issues as ‘what is the net cost to the government for the delivery of services (outputs)’ and ‘what is an appropriate level of capital to hold in the business to sustain operations’, just as a profit-making company must.

The financial statements in Chapter 7 of the 2007–08 PBS detail an estimate of the current year result, the planned financial performance for the next 12 months and ‘forward estimates’ for the next 3 years. Revised estimates of budgeted performance are published later in the year in the PAES, and the actual financial performance is reported in October in the Annual Report.

The Defence PBS essentially provides four sets of budgeted financial statements:

- The ‘departmental’ statements [PBS Table 7.1 to 7.6] for the Department of Defence. These describe the resources that the department controls to deliver outputs. In the ordinary sense, these are the revenue and costs associated with running Defence.
- The ‘administered’ statements, referred to as schedules, [PBS Table 7.7 to 7.9] for the funds administered on behalf of government primarily used for military superannuation schemes.
- Financial statements for the Defence Materiel Organisation (DMO) [PBS Section 2]. The DMO became a prescribed agency on 1 July 2005 and as such have prepared separate budgeted statements which are not consolidated into the Defence financial statements. The DMO will continue to provide services to Defence through a range of Materiel Acquisition Agreements ultimately managed by a Memorandum of Arrangements. The financial statements for the DMO are not analysed in this Brief.
- Financial statements for the Defence Housing Authority [PBS Section 3]. The Defence Housing Authority which forms part of the Defence Portfolio is not consolidated into the Defence financial statements and its budget forecasts are not analysed in this Brief.

We explain the departmental statements below. The departmental financial statements include:

- Budgeted Departmental Income Statement (also known as the Operating Statement or Profit and Loss Statement – records revenues and expenses) [PBS Table 7.1];
- Budgeted Departmental Balance Sheet (records assets, liabilities and equity and shows the financial position of the agency) [PBS Table 7.2];
- Budgeted Departmental Statement of Cash Flows [PBS Table 7.3];

- Departmental Statement of Changes in Equity – Summary of Movement (this statement is designed to show the movement of the Commonwealths' interest in Defence. The statement has been prepared for the 2007-08 financial year to show the net operating result, movements in reserves and additional capital injections from the Commonwealth) [PBS Table 7.4]; and
- Departmental Capital Budget Statement (shows the budgeted spend on capital and the source of funding) [PBS Table 7.5].

In addition to the key statements and notes, a *summary of movement of non-financial assets* which shows the movements in property, plant and equipment and specialist military equipment is also included. [PBS Table 7.6].

The departmental financial statements only report at the most aggregate level and refer to the total financial performance of Defence as a whole. There is no information on the individual outputs, services or the Defence groups in these statements.

However, at PBS Chapter 5 Planned Outcome Performance, prices to government are given for each of the Government Outcomes and their associated Outputs, including a profile of the associated revenue and expenses for each Outcome and Output and performance targets.

An important part of the financial statements are the accompanying notes [PBS pp.227-238]. Note 1 provides an explanation of the accounting policies adopted in preparing the financial statements; however no further information is available by way of note disclosures (excluding special accounts). The Defence Annual Report provides a much more extensive set of notes that break down many of the items in the financial statements into sub-categories. If you want to understand the budgeted financial statements it helps to have a recent copy of the annual report at hand so that you can refer to the notes to the financial statements.

Revenues and expenses in the Budgeted Departmental Income Statement are calculated using the accrual basis of accounting. Appropriations to fund expenses therefore include amounts to cover both cash and non-cash expenditure items.

The Budgeted Departmental Income Statement – The Operating Statement [PBS Table 7.1]

The Statement of Financial Performance reports on the accrued revenues and expenses involved in the delivery of the Defence Outputs during the financial year. It does not include what is spent on the investment in capital assets – except for R&D, project studies, design work, specialist and professional advice and project office overheads as operating expenses. Capital assets held are reported in the Budgeted Departmental Balance Sheet PBS Table 7.2.

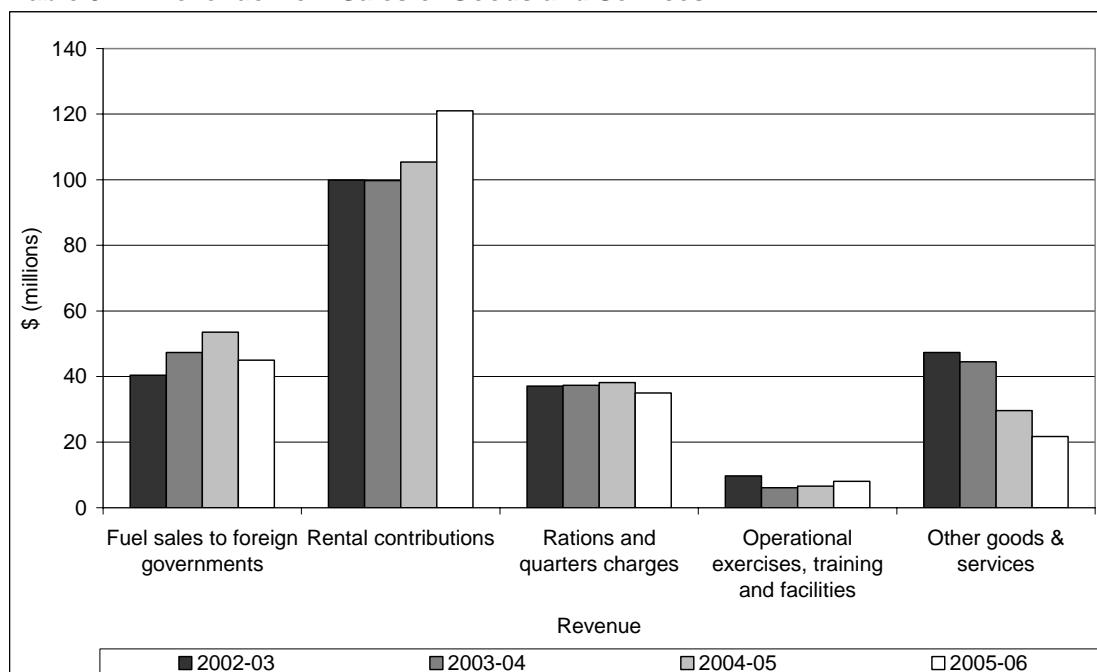
In simplest terms, the Statement of Financial Performance subtracts Defence's total expenses from its total revenues to calculate the net operating result (profit or loss) for the financial year. For the 2007-08 Budget, this is represented as:

$$\boxed{\text{NET OPERATING POSITION} \\ (\$0 \text{ million})} = \boxed{\text{REVENUES} \\ \$20\,087 \text{ million}} - \boxed{\text{EXPENSES} \\ \$20\,087 \text{ million}}$$

Budgeted Revenues, or income, for 2007-08 broadly comprises:

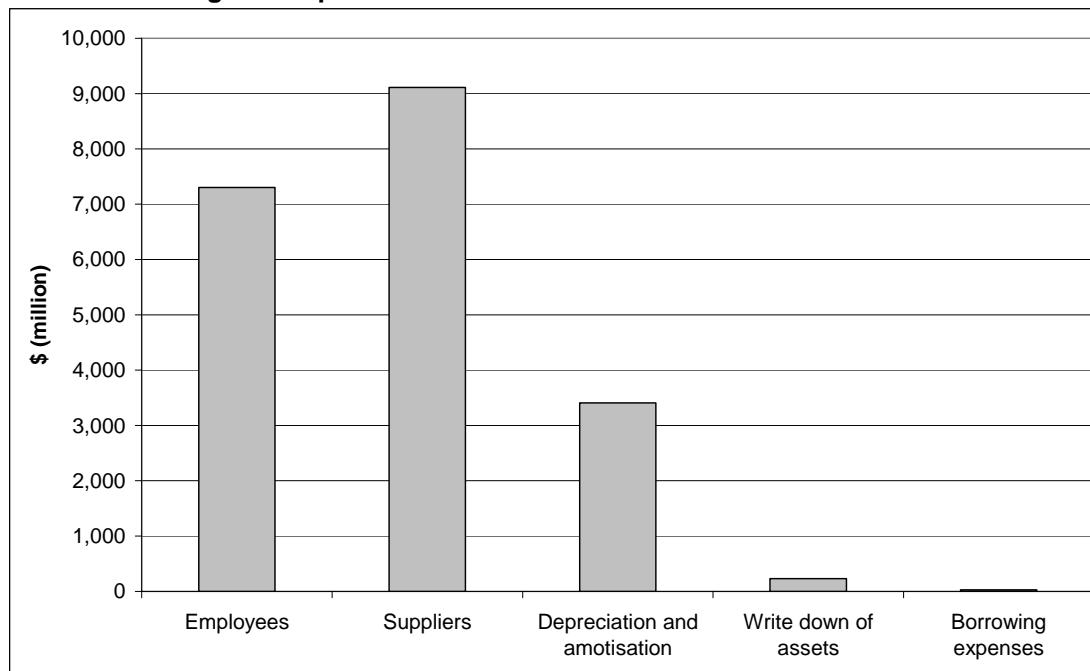
- **Appropriations from Government** (\$19,170 million) includes the Price for Outputs Appropriation and funds the operational expenses of Defence. This appropriation, together with revenue from other sources (such as sale of goods and services and other revenue), covers both cash-related (e.g. employee expenses and suppliers) and non-cash-related expenses like depreciation. Explanations for variations to budget for revenue (including appropriations) are provided at PBS pp.21-26 in Chapter 2 2007-08 Budget Measures.
- **Sales of Goods and Services** (\$643 million) includes revenue from goods and services provided to organisations other than the agreed outputs to government. A detailed breakdown is not provided; however, the nature of these revenues is demonstrated using the four financial years (2002-03 to 2005-06) actual revenue in Table 9.2.1.

Table 9.2.1 Revenue from Sales of Goods and Services



- **Assets Now Recognised** is the revenue associated with corrections in accounting for assets found or recognised and not previously recorded. The Budget for 2007-08 is \$200 million against actual results of \$536 million in 2005-06 and a projected result of \$467 million for 2006-07.
- **Other Revenue** (\$66 million) includes foreign military sales refunds, excise refunds, settlement of damages and other miscellaneous items.
- **Budgeted Expenses** for 2007-08 broadly comprises the five components in Table 9.2.2.

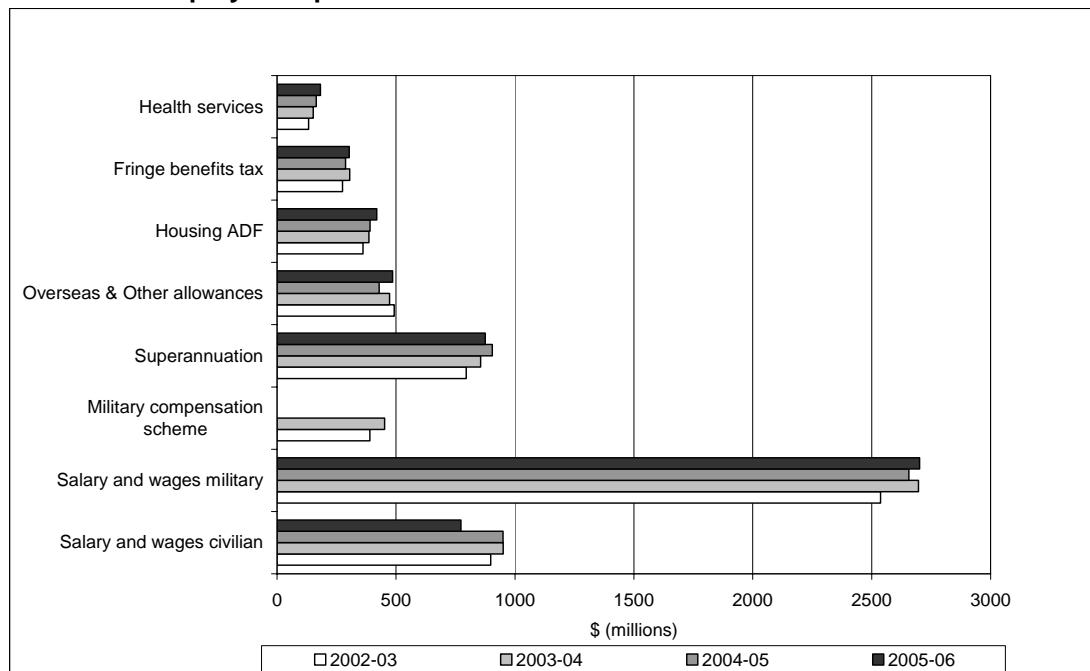
Table 9.2.2 Budgeted Expenses



The key components are:

- **Employees** represent all costs associated with the employment of military and civilian personnel. A detailed profile of the components of this expense is not provided however the nature of these costs is well demonstrated using the four financial years (2002-03 to 2005-06) actual costs in Table 9.2.3.

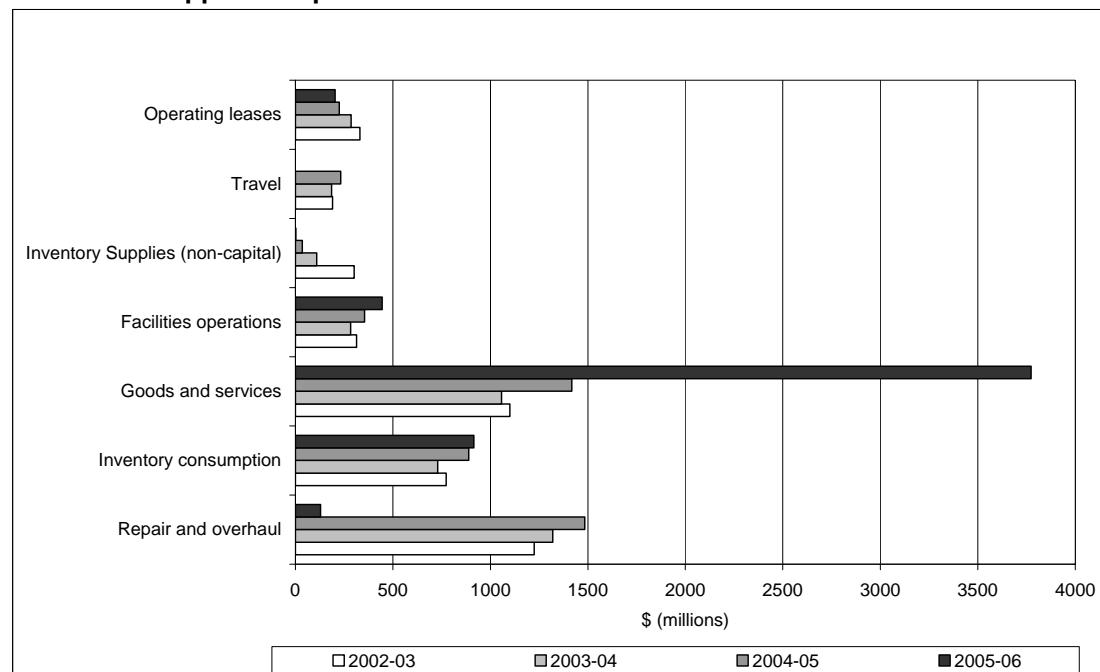
Table 9.2.3 Employee Expenses



It should be noted that as a result of DMO becoming a prescribed agency on 1 July 2005, Defence have reclassified civilian employee expenditure to supplier expenses. This represents Defence's funding of DMO's civilian workforce.

- **Suppliers** include all costs associated with the supply of goods and services to Defence for use in delivering the Outputs. The expense has increased from the previous estimate and is due to increased funding requirements for operations, increased spending on defence force recruitment and retention, and changes to pricing parameters. In addition, goods and services expense has increased dramatically, which may partly be attributed to the reclassification of DMO employee expenses to suppliers' expense. The actual expenses for the four financial years 2002-03 to 2005-06 appear in Table 9.2.4.

Table 9.2.4 Suppliers Expenses



- **Depreciation and amortisation** represents the annual cost of using up assets over time – it approximates the asset value divided by remaining life.
- **Write Down of Assets** is the reduction in the value of assets which are no longer used or exist such as specialist military equipment and inventories which are obsolete.

The 2005-06 Defence Annual Report provides more detailed information on actual expenses and revenues.

Net Operating Result

The net operating result shows the net financial impact on Defence's resources of the operating activities undertaken during the year. Defence is budgeting for a break even operating result for 2007-08, which is consistent with both the previous estimate and the 2006-07 estimated actual position. It should be noted that \$1,800 million in new budget measures is applicable to the 2007-08 budget estimate figures (PBS pp.21).

The Equity Interests part of the Budgeted Departmental Income Statement summarises the net change to Accumulated Surpluses at 30 June. This also appears on the Budgeted Departmental Balance Sheets as a component of equity, and again in the Departmental Statement of Changes in Equity [PBS 7.4]. The accumulated surpluses amount is the sum of the past operating results that have occurred since the start of accrual reporting by Defence reduced by capital withdrawals of asset sales proceeds and dividends by way of the discontinued Capital Use Charge (CUC) prior to July 2003.

The balance of accumulated surpluses is calculated by adding the net operating result for the financial year to the ‘accumulated surplus’ from the beginning of the financial year (Accumulated Surpluses at 1 July), adjusted for any changes in accounting policy to give the **Total Available for Appropriation**.

The Budgeted Departmental Income Statement PBS Table 7.1 is demonstrated on the following page.

The Budgeted Departmental Income Statement – The Operating Statement⁽¹⁾ [PBS Table 7.1]

The price of outputs		Revenues Income earned through the delivery of Defence's Outputs and from			Expenses Resources consumed in the process of delivering the Defence Outputs to government. This is largely employee expenses, suppliers (including inventory use) and depreciation				
2006-07 Estimated Actual \$'000		2007-08 Previous Estimate \$'000	2007-08 Budget Estimate \$'000	Variation %	2008-09 Forward Estimate \$'000	2009-10 Forward Estimate \$'000	2010-11 Forward Estimate \$'000		
INCOME									
Revenue	Revenue from Government	17,885,333	19,170,126	7.2	19,065,666	19,286,597	19,707,273		
620,182 Sale of Goods and Rendering of Services	583,234	643,206	10.3	660,375	661,962	688,868			
64,868 Other Revenue	66,308	66,020	-0.4	65,775	81,017	75,130			
17,906,712 Total Revenue	18,534,875	19,879,352	7.3	19,791,816	20,029,576	20,471,271			
Gains									
467,350 Assets now recognised	00,000	200,000	-	100,000	100,000	100,000			
- Sale of Assets	-	-	-	-	-	-			
- Net foreign exchange gains	-	-	-	-	-	-			
7,700 Other gains	6,200	7,700	24.2	7,700	7,700	7,700			
475,050 Total gains	206,200	207,700	0.7	107,700	107,700	107,700			
18,381,762 Total income	18,741,075	20,087,052	7.2	19,899,516	20,137,276	20,578,971			
EXPENSES									
6,795,577 Employee Benefits	6,971,447	7,304,628	4.8	7,655,153	8,110,711	8,665,989			
7,789,651 Suppliers	8,103,798	9,111,987	12.4	8,636,861	8,528,011	8,510,571			
3,123 Grants	3,904	4,395	12.6	1,507	1,507	1,507			
3,332,924 Depreciation and amortisation	3,409,595	3,409,595	0.0	3,435,705	3,316,696	3,219,288			
13,850 Finance Costs	20,799	25,574	23.0	39,408	49,458	50,704			
Write-down of assets and impairment of assets	230,000	230,000	-	130,000	130,000	130,000			
443,595 Net foreign exchange losses	-	-	-	-	-	-			
- Net losses from sale of assets	-	-	-	-	-	-			
3,042 Other expenses	1,532	873	-43.0	882	893	912			
18,381,762 Total Expenses	18,741,075	20,087,052	7.2	19,899,516	20,137,276	20,578,971			
Surplus (Deficit) Attributable to the Australian Government									
	See Balance Sheet				-	-	-		
EQUITY INTEREST									
Accumulated surpluses at 1 July	35,736,828	35,736,828	-	35,854,538	35,854,538	35,854,538			
Total Available For Appropriation	35,736,828	35,736,828	-	35,854,538	35,854,838	35,854,538			
Change in accounting policy	-	-	-	-	-	-			
-- Capital withdrawal	-	-	-	-	-	-			
111,570 Entity Adjustments	117,710	117,710	-	-	-	-			
Accumulated surpluses	35,854,538	35,854,538	-	35,854,538	35,854,538	35,854,538			
35,736,828 as at 30 June									

Note: 1. Cross reference to Table 2.6 in Chapter Two - Resourcing

Net Operating Result The net profit or loss calculated by subtracting Expenses from Revenue

Total available for appropriation

The equity from the start of the year adjusted for the operating result made during the year

Surpluses at 1July
Defence's total accumulated surplus at start of year

Capital Withdrawal

Cash returned to the government from the sale of assets, mainly property.

Accumulated Surplus 30 June
Accumulated results at the end of the year shown as part of equity on the Balance Sheet

The Budgeted Departmental Balance Sheet – The Balance Sheet [PBS Table 7.2]

The Budgeted Departmental Balance Sheet projects a snapshot of Defence's assets, liabilities and equity (net assets) at the end of the financial year. This is calculated by subtracting the total liabilities from the total assets to arrive at net assets. For 2007-08 this is represented as:

NET ASSETS \$56 billion	=	ASSETS \$59 billion	-	LIABILITIES \$3 billion
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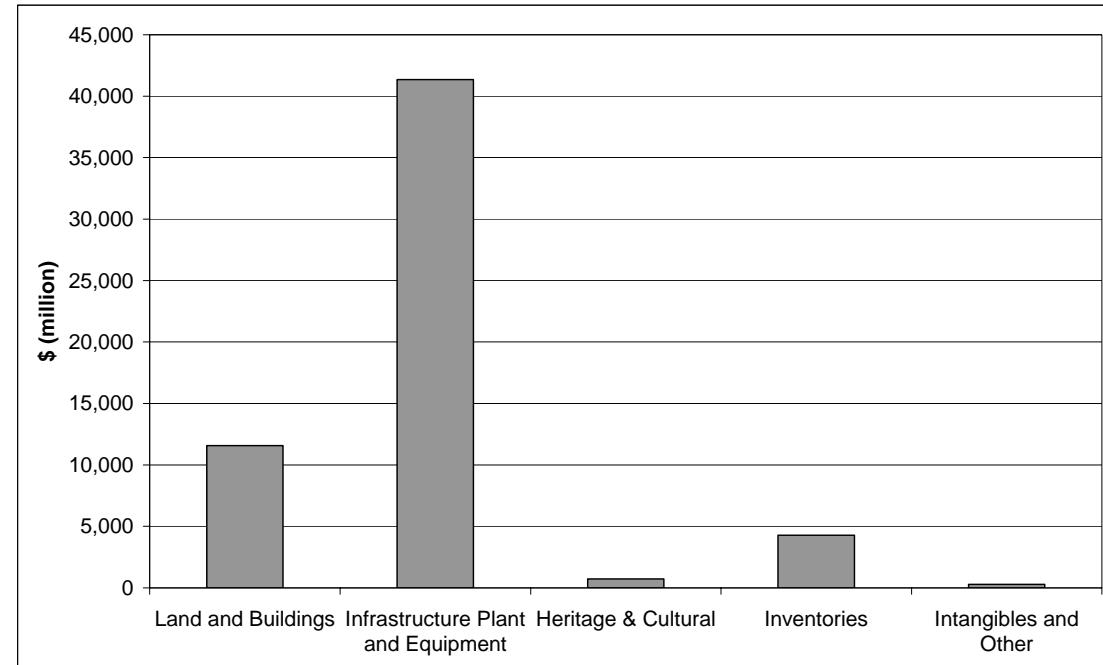
Budgeted assets for 2007-08 comprise:

- **Financial Assets** of \$462 million is essentially made up of cash and receivables.
 - **Cash** is estimated to be \$36 million in 2007-08 and this remains unchanged for the three forward years to 2010-11.
 - **Receivables** in 2007-08 (\$377 million) which includes cash reserves held as an appropriation receivable (the amount is undisclosed). Defence is able to use the appropriation receivable to meet employee and supplier liabilities.

It should be noted that receivables for the 2005-06 financial year (actual results) also included an amount for GST receivable of \$79 million. The total receivable disclosed in the 2005-06 financial statements was \$512 million.

- **Non-Financial Assets** of \$58,765 million are broken down in Table 9.2.5.

Figure 9.2.5 Budgeted Non-Financial Assets 2006-07



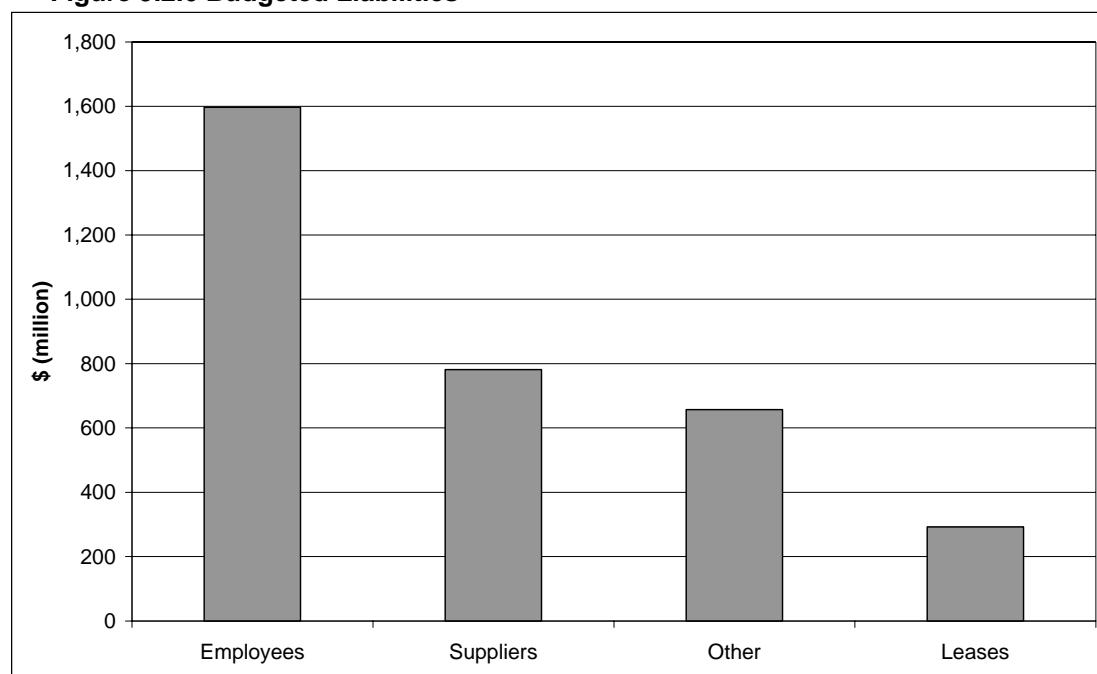
Non-financial assets include:

- **Land and Buildings** of \$11,579 million, and **Infrastructure Plant and Equipment** of \$41,350 million.
- **Intangibles** (\$284 million) including software and patents, copyrights and licences.
- **Heritage & Cultural** (\$723 million) including items of national heritage or cultural significance.

Expenses incurred as a result of the use of these assets includes depreciation (\$3,409 million) and write down of assets (\$230 million) shown on the Budgeted Departmental Income Statement. As assets are sold the difference between the value of assets sold (expense) and the revenue from the sale of assets (revenue) represents the profit or loss on sales. It does not appear as though Defence has budgeted for any profit or loss on sale. The proceeds from asset sales are also reported in the Budgeted Departmental Statement of Cash Flows PBS Table 7.3.

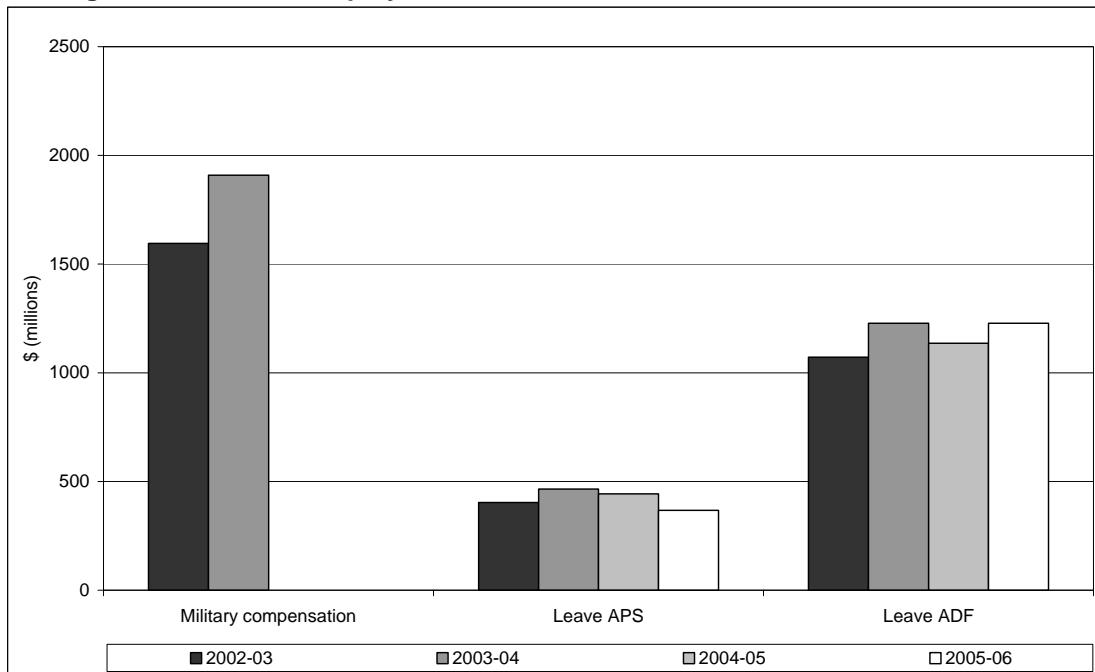
- **Inventories** totalling \$4,286 million are included in Defence's Balance Sheet.
- **Other** (\$216 million) includes prepaid expenses and prepaid capital items.
- **Budgeted liabilities** represent amounts owing to other parties and comprise three components: employee provisions, suppliers' liabilities, leases and other payables (which includes a provision for Asbestos Related Disease Exposure). These are graphed in Figure 9.2.6.

Figure 9.2.6 Budgeted Liabilities



- **Employee Provisions** is \$1,596 million for 2007-08 and is the major liability for Defence. Actual employee provisions reported for the 2002-03 to 2005-06 financial years appear in Figure 9.2.7. It should be noted that the responsibility for administering military compensation was transferred to the Department of Veterans Affairs and hence no expenditure is shown for the 2004-05 financial year.

Figure 9.2.7 Actual Employee Liabilities



- **Suppliers** for 2007-08 is estimated at \$743 million. Actual creditors reported in the 2005–06 annual report included non-capital trade creditors (\$640 million) and capital trade creditors (\$55 million). Marginal increases in total suppliers and other payables are projected in the PBS from 30 June 2009 to 30 June 2011.
- **Leases** (\$291 million), being mainly a finance lease arrangement with the Defence Housing Authority for the supply of housing to ADF personnel.
- The **Net Assets** also represent the **Total Equity**. The total equity represents the government's overall owner interest in Defence. In the Equity part of the Statement of Financial Position the total **equity** is broken down into three somewhat artificial categories:
 - **Contributed Equity** (\$8,886 million) is the accumulated result of equity injections since 1999 less capital withdrawals. Capital withdrawn relates to the government's share of the proceeds from property sales.
 - **Reserves** (\$11,158 million) which result from the revaluation of assets. For accounting purposes, where the value of assets has been revised and increased, Defence is required to account for these increases through increasing the asset as well as a special 'revaluation reserve'; and

- **Accumulated Surpluses** is the accumulated results from previous years plus the initial value of net assets (or equity) when accrual reporting was introduced. Accumulated surpluses have also been adjusted for changes to accounting policy resulting from the adoption of Australian Equivalents to International Financial Reporting Standards.

Finally, on the Budgeted Departmental Balance Sheet PBS Table 7.2 the assets and liabilities are broken down into current and non-current. Current assets and liabilities are those which are expected to be realised within the next twelve months, whereas non-current ones are expected to be realised beyond that time.

The Budgeted Departmental Balance Sheet is demonstrated on the following page.

Budgeted Departmental Balance Sheet ⁽¹⁾ [PBS Table 7.2]

Assets (what Defence owns) (resources that will bring future benefit) The financial and non-financial assets budgeted to the end of the financial year.			Liabilities (what Defence owes) (resources that have been used but not paid for) Payments that Defence is required to make at some time in the future.		
2006-07 Estimated Actual \$'000	2007-08 Previous Estimate \$'000	2007-08 Budget Estimate \$'000	2008-09 Forward Estimate \$'000	2009-10 Forward Estimate \$'000	2010-11 Forward Estimate \$'000
ASSETS					
Financial assets:					
36,221 Cash and cash equivalents	36,221	36,221	36,221	36,221	36,221
199,628 Appropriation Receivable	213,802	213,802	158,802	98,802	33,802
163,479 Other receivables	163,479	163,479	163,479	163,479	163,479
113,268 Other financial assets	49,270	49,270	49,270	49,270	49,270
512,596 Total financial assets	462,772	462,772	407,772	347,772	282,772
Non-financial assets:					
11,373,183 Land and buildings	11,446,975	11,579,831	12,613,376	13,455,156	14,121,387
39,504,732 Infrastructure	41,420,555	41,349,798	44,157,914	47,794,903	51,678,516
287,959 Intangibles	284,328	284,509	281,084	277,685	274,332
723,572 Heritage and cultural	723,572	723,572	723,572	723,572	723,572
4,186,641 Inventories	4,483,821	4,286,486	4,435,501	4,572,287	4,846,732
325,061 Assets held for sale	325,061	325,061	325,061	325,061	325,061
216,363 Other	216,363	216,363	216,363	216,363	216,363
56,617,511 Total non-financial assets	58,900,675	58,765,620	62,752,871	67,365,027	72,185,963
57,130,107 Total assets	59,363,447	59,228,392	63,160,643	67,712,799	72,468,735
LIABILITIES					
Payables					
719,941 Suppliers	743,275	743,275	766,609	789,943	813,277
38,420 Other Payables	38,420	38,420	38,420	38,420	38,420
758,361 Total Payables	781,695	781,695	805,029	828,363	851,697
Interest bearing liabilities					
308,089 Leases	291,729	291,729	752,355	713,792	674,167
2,404 Other interest bearing liabilities	2,404	2,404	2,404	2,404	2,404
310,493 Total interest bearing liabilities	294,133	294,133	754,759	716,196	676,571
Provisions					
1,599,953 Employees	1,596,780	1,596,780	1,725,132	1,866,204	2,087,781
657,435 Other provisions	657,435	657,435	657,435	657,435	657,435
2,257,388 Total provisions	2,254,215	2,254,215	2,382,567	2,523,639	2,745,216
3,326,242 Total liabilities	3,330,043	3,330,043	3,942,355	4,068,198	4,273,484
53,803,865 NET ASSETS	56,033,404	55,898,349	59,218,288	63,644,601	68,195,251
EQUITY					
6,909,195 Contributed equity	9,021,025	8,885,969	12,205,908	16,632,221	21,182,871
11,157,842 Reserves	11,157,841	11,157,842	11,157,842	11,157,842	11,157,842
35,736,828 accumulated deficits	35,854,538	35,854,538	35,854,538	35,854,538	35,854,538
53,803,865 Total Equity	56,033,404	55,898,349	59,218,288	63,644,601	68,195,251
1,805,311 Current assets	1,899,630	1,871,617	1,995,876	2,139,724	2,290,012
55,324,796 Non-current assets	57,463,817	57,356,775	61,164,767	65,573,075	70,178,723
2,255,192 Current liabilities	2,257,769	2,257,769	2,672,917	2,758,238	2,897,422
1,071,050 Non-current liabilities	1,072,274	1,072,274	1,269,438	1,309,960	1,376,062

Note: 1. Cross-reference to Table 2.7 in Chapter Two - Resourcing

Net Assets = Total Equity

This is simply the difference between the assets and the liabilities and represents the value of the owner's interests. Note that capital is net of capital withdrawals.

Here the equity (net assets) are broken up in terms of the source or nature of equity.

The Budgeted Departmental Statement of Cash Flows [PBS Table 7.3]

The Budgeted Departmental Statement of Cash Flows reports the actual receipt and expenditure of cash in Defence. It is, however, just as complex as any of the other statements.

The cash flows are broken into three categories and the net impact of cash movements for each category is then brought together to literally show the net impact on Defence's bank account at the end of the financial year. In broad terms the 2007-08 budget shows the movements in cash as follows:

Change to cash \$ nil	=	Net cash from/to operating activities \$4,714 million	+	Net cash from/to investing activities -\$6,674 million	+	Net cash from/to financing activities \$1,960 million
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Net Cash from/to Operating Activities is the net cash remaining after the delivery of the Defence outputs. As is shown, from the total cash received from operating activities of \$20,352 million about \$7,190 million is spent on employees and \$8,417 million is spent on suppliers. The composition of these amounts are similar to the corresponding *expenses* in the Budgeted Departmental Income Statement – although the numbers will differ slightly due to goods and GST and timing differences between expenses are incurred and when the cash is paid. The total unused cash from operating activities is around \$4,714 million.

Movements to and from the Official Public Account relate to the implementation of an 'as required' cash drawdown arrangement. Cash reserves can be drawn down through an appropriation receivable.

Net Cash from/to Investing Activities is the difference between the gross receipts from the sale of assets and cash used, including the purchase of specialist military equipment (\$4,614 million), land and buildings (\$602 million), other property, plant and equipment (\$350 million), and inventory purchases (\$1,186 million). Broadly speaking, the specialist military equipment includes the major and minor capital equipment programs, while other property, plant and equipment include much of the capital facilities program.

Investing activities consume \$6,674 million more cash than they generate from capital receipt activities. The difference is funded from the excess operating activities cash and equity appropriation. It is possible to see how much of the excess operating cash is used to purchase capital items by looking at PBS Table 7.5 Departmental Capital Budget Statement. Of the \$4,714 million net operating cash, \$3,511 million is budgeted to be used as funding for capital, referred to as 'operating receipts' within Total Capital Funding. This amount represents funding in the output appropriation for depreciation and other non cash amounts that is being applied to buy assets.

Net Cash from/to Financing Activities is mainly concerned with accounting for the various cash transactions between Defence and the government related to capital investment.

Net cash from/to financing activities \$1,960 million	=	Equity injection \$2,062 million	-	Capital withdrawal \$86 million	-	Repayment of debt \$16 million
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Finally, the three net cash changes over the financial year are brought together to project the cash held by Defence on 30 June 2008 on the basis of the starting balance at 1 July 2005.

Cash held 30 June 2007 \$36 million	=	Cash held 1 July 2006 \$36 million	+	Change to cash \$nil
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The Budgeted Departmental Statement of Cash Flows is demonstrated below.

The Budgeted Departmental Statement of Cash Flows [PBS Table 7.3]

The *cash* received for operating activities is the collection of the *revenues* on the Statement of Financial Performance. The difference is due to timing of transactions.

The *cash* used for operating activities is less than the *expenses* recorded for operating activities on the Statement of Financial Performance because of non-cash expenses (eg depreciation)

2006-07 Estimated Actual \$'000	2007-08 Previous Estimate \$'000	2007-08 Budget Estimate \$'000	Variation %	2008-09 Forward Estimate \$'000	2009-10 Forward Estimate \$'000	2010-11 Forward Estimate \$'000
OPERATING ACTIVITIES						
Cash Received						
Sales of goods and services	583,234	643,206	10.3	660,375	661,962	688,868
GST Receipts from Customers	18,121	18,121	-	18,656	19,206	19,774
- Interest						
Appropriations	17,885,333	19,170,126	7.2	19,065,666	19,286,597	19,707,273
GST Received from ATO	404,603	404,602	0.0	418,657	433,201	448,248
Other Cash Received	64,808	56,020	1.9	65,775	81,017	75,130
Cash transfer from the Official Public Account						
167,586 (receivables)	50,000	50,243	0.5	55,000	60,000	65,000
18,418,920 Total cash received	19,006,098	20,352,318	7.1	20,284,129	20,541,983	21,004,293
Cash Used						
Employees	6,856,910	7,190,091	4.9	7,526,801	7,969,639	8,444,412
Suppliers	7,408,978	8,417,167	13.6	8,015,029	7,914,294	8,013,536
Borrowing Costs	20,799	25,574	23.0	39,408	49,458	50,704
Grants	3,904	4,395	12.6	1,507	1,507	1,507
Other Cash Used	3,042	873	-43.0	882	893	912
Cash transfer to the Official Public Account						
18,600 (receivables)						
13,898,538 Total cash used	14,292,123	15,638,100	9.4	15,583,627	15,935,791	16,511,071
NET CASH FROM /(TO) OPERATING ACTIVITIES						
4,520,382 OPERATING ACTIVITIES	4,713,975	4,714,218	0.0	4,700,502	4,606,192	4,493,222
INVESTING ACTIVITIES						
Cash received						
Proceeds from sales of property, plant and equipment	156,619	79,194	-49.4	140,123	43,694	37,658
- Other cash received						
72,603 Total cash received	156,619	79,194		140,123	43,694	37,658
Cash used						
Purchase of land and buildings	487,271	602,670	23.7	892,808	1,149,314	983,877
Purchase of specialist military equipment	4,471,181	4,614,166	-2.5	5,736,816	6,434,786	6,592,102

2006-07 Estimated Actual \$'000	2007-08 Previous Estimate \$'000	2007-08 Budget Estimate \$'000	Variation %	2008-09 Forward Estimate \$'000	2009-10 Forward Estimate \$'000	2010-11 Forward Estimate \$'000
Purchase of plant and equipment 347,185	413,446	350,217	-15.3	316,858	281,660	257,458
1,205,570 Purchase of inventory - Other cash used	1,324,270	1,186,354	-11.1	177,126	1,171,876	1,208,468
6,560,842 Total cash used	6,966,063	6,753,407	-3.1	8,123,608	9,037,636	9,041,905
NET CASH FROM/(TO) INVESTING ACTIVITIES	-6,488,239	-6,674,213	-2.0	-7,983,485	-8,993,942	-9,004,247
FINANCING ACTIVITIES						
Cash received:						
Appropriations –						
1,998,277 contributed equity	2,211,529	2,062,804	-6.7	3,403,841	4,430,996	4,550,650
1,998,277 Total cash received	2,211,529	2,062,804	-6.7	3,403,841	4,430,996	4,550,650
Cash used						
15,420 Repayments of debt	16,360	16,360	-	36,956	38,563	39,625
15,000 Return of contributed equity	99,700	86,449	-13.3	83,902	4,683	-
30,420 Total cash used	116,060	102,809	-11.4	120,858	43,246	39,625
NET CASH FROM/(TO) FINANCING ACTIVITIES	1,967,857	2,095,469	1,959,995	-6.5	3,282,983	4,387,750
Net Increase/(Decrease) in Cash and cash - equivalents held						
Cash and cash equivalents at beginning of reporting period	36,221	36,221	-	36,221	36,221	36,221
- Other Movements						
36,221 Cash and cash equivalents at end of reporting period	36,221	36,221	-	36,221	36,221	36,221
Here is where generally payments to and from government are shown						
Here is where the net change in cash in the bank between the start and the end of the financial year is calculated						
The purchase of assets including capital assets and buildings						
Cash balance held in Defence's bank account						

The Capital Budget [PBS Table 7.5]

The Capital Budget Statement [PBS Table 7.5] is largely a restatement of the Budgeted Departmental Statement of Cash Flows relating to capital investment. It spells out where the funding for the capital budget comes from.

The **Capital Expenditure** is presented just as it is in the Budgeted Departmental Statement of Cash Flows. The **Capital Receipts** are also sourced from the Budgeted Departmental Statement of Cash Flows and the calculation of the **Net Capital Receipts** simply subtracts the Capital Withdrawal from this cash received for investing activities. The interesting part of the statement is the calculation of the **Total Capital Funding**.

The **Total Capital Funding** shows the three separate sources of cash funding for capital investment. This includes the equity injection, or equity appropriation, from the government (\$1,999 million is shown, however the indicated amount to be appropriated is \$2,062), and the net capital receipts of \$57 million, being the proceeds from the sale of assets after the capital withdrawal by government. Finally, the Operating receipts provide the balance of the capital funding of \$3,511 million from what is *in effect* cash from operating activities.

$$\begin{array}{lclclcl} \text{Capital funding} & = & \text{Equity injection} & + & \text{Operating receipts} & + & \text{Net capital receipts} \\ \$5,567 \text{ million} & & \$1,999 \text{ million} & & \$3,511 \text{ million} & & \$57 \text{ million} \end{array}$$

Further details on the Capital Budget can be found in PBS Table 7.5.

Table 7.5: Departmental Capital Budget Statement

Capital expenditure as given in the Statement of Cash Flows

2006-06 Estimated Actual \$'000	2007-08 Previous Estimate \$'000	2007-08 Budget Estimate \$'000	Variation %	2008-09 Forward Estimate \$'000	2009-10 Forward Estimate \$'000	2010-11 Forward Estimate \$'000
CAPITAL EXPENDITURE						
4,471,181	4,731,076	4,614,166	-2.5	5,736,816	6,434,786	6,592,102
884,091	900,717	952,887	5.8	1,209,666	1,430,974	1,241,335
5,355,272	5,531,793	5,567,053	-1.1	6,946,482	7,865,760	7,833,437
Funded from:						
1,998,277	2,211,529	1,998,630	-9.6	3,403,841	4,430,996	4,550,650
3,299,392	3,363,345	3,511,505	4.4	3,486,420	3,395,753	3,245,129
57,603	56,919	56,919	-	56,221	39,011	37,658
5,355,272	5,631,793	5,567,053	-1.1	6,946,482	7,865,760	7,833,437
CAPITAL RECEIPTS						
Proceeds from the sale of specialist military equipment	-	-	-	-	-	-
Proceeds from sales of property, plant and equipment	156,619	79,194	-49.4	140,123	43,694	37,658
Other capital receipts	-99,700	-22,275	-77.7	-83,902	-4,683	-
Less: capital withdrawal				56,221	39,011	37,658
57,603	56,919	56,919	-			

This is where the **net capital receipts** are calculated by subtracting the capital withdrawal from the receipts from the sales of property plant and equipment

This is the interesting bit where the various sources of funding for capital investment are brought together.

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GLOSSARY

ADF	Australian Defence Force
AES	Additional Estimates Statements
AEW&C	Airborne Early Warning & Control
ANAO	Australian National Audit Office
APS	Australian Public Service
CDF	Chief of the Defence Force
CIOG	Chief Information Officer Group
CSP	Commercial Support Program
CUC	Capital Use Charge
DAR	Defence Annual Report
DCP	Defence Capability Plan
DFRB	Defence Force Retirement and Death Benefits
DHA	Defence Housing Authority
DMO	Defence Materiel Organisation
DRP	Defence Reform Program
DSG	Defence Support Group
DSTO	Defence Science and Technology Organisation
EWSP	Electronic Warfare Self Protection
FADT	Foreign Affairs Defence and Trade
FBT	Fringe Benefits Tax
FMA	<i>Financial Management and Accountability Act 1997</i>
GDP	Gross Domestic Product
GST	Goods and services tax
MSBS	Military Superannuation and Benefits Scheme
PAES	Portfolio Additional Estimates Statements
PBS	Portfolio Budget Statement
SES	Senior Executive Service

Notes

Notes