

August 2007 — Issue 9



2007 Defence budget summary

by Mark Thomson

Overview

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 in excess of \$11 billion in between.

Included in this latest round of funding was \$11.5 billion over ten years to harden, network and expand the Army by 3,000 personnel, \$6.1 billion for a fleet of twenty-four F/A-18F Super Hornet fighter aircraft and \$3.5 billion for four C-17 strategic lift aircraft. These initiatives are the latest instalment in the expansion and modernisation of the defence force that commenced back in 2000.

Unpinning what is Australia's largest military build-up since the Vietnam conflict is a commitment by the government to increase baseline defence spending by 3% above inflation every year until at least 2016. In addition, supplementation continues for overseas deployments with the accumulated cost of operations in Afghanistan and Iraq now exceeding \$1.7 billion and \$2 billion respectively.

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

For the moment, however, funding is not the most pressing problem for Defence. Not only is the ambitious capital investment program experiencing mounting delays in the delivery of projects, but the planned expansion of the force has proved elusive due to the persistent failure to meet recruiting targets. To address the latter problem, an extra \$3.1 billion over ten years has recently been provided for personnel related initiatives.

Overall, Defence has been granted just about everything that they have asked for in recent years, all that remains is for them to deliver the military capability they have promised.

Key statistics 2007–08

Defence budget:	\$22 billion	Strength of permanent Navy:	12,899
Increase on prior year:	\$2.1 billion	Strength of permanent Army:	26,126
Year-on-year real growth:	7.9%	Strength of permanent Air Force:	13,480
Year-on-year nominal growth:	10.6%	Total Permanent Force:	52,505
Percentage of GDP:	2%	Total Reserve Force:	19,530
Capital Investment:	\$6.2 billion	Civilian personnel:	19,935

Real year-on-year growth calculated using implicit non-farm GDP deflator.

Strategic resource allocation

Australia’s strategic circumstances lead the ADF to prepare for and conduct operations to:

- assist domestic authorities with counter-terrorism in Australia through intelligence and response capabilities
- counter state weakness in our immediate region as has become necessary in East Timor and Solomon Islands
- contribute to coalition operations such as in Iraq and Afghanistan to support broader national interests and fulfill alliance commitments
- support our interests in the broader Asia Pacific, play a lead role in regional security and, if necessary, defend Australia.

Although around \$2 billion has been committed to ADF support for domestic security since 9/11, it remains a limited role. Of the remaining three areas, the immediate region and coalition commitments principally draw on land capabilities supported by air- and sea-lift capabilities (mobility), while the fourth mainly demands on advanced air and naval capabilities.

Accordingly, for the purpose of analysis, the demarcation between land and mobility capabilities on the one hand, and air and naval combat (exclusive of mobility) on the other, is a more useful distinction than that of Army/Navy/Air Force. Land and mobility capabilities account for 42% of recurrent expenses compared with 46% for air and naval combat and 12% for command, control and intelligence capabilities. In contrast, air and naval capabilities account for 67% of recent and planned investment, land and mobility 25%, and 8% for the remainder.

As of mid 2007, around 4,000 ADF personnel were deployed on operations including roughly 1,000 in the immediate region and 3,000 split between Afghanistan and Iraq. This level of deployment equates to roughly 8% of the then 51,500 strong permanent force. As a result, the ADF is under some pressure though not yet overstretched (in comparison, the United States has 18% of their force deployed). Nonetheless, the present pattern of deployments unavoidably leaves a reduced capacity to respond to contingencies especially those demanding land forces.

The scale of ADF deployments is reflected in the fact that supplementation for operations in 2007–08 amounts to only 5% of the total budget compared with 67% for other recurrent spending and 28% for capital investment.

Strategic priorities as reflected in resource allocations

Operational deployments		
	Duration	Total Cost
East Timor	9 years	\$1.6 b
Solomon Islands	5 years	\$148 m
Afghanistan	6 years	\$1.7 b
Iraq	5 years	\$2.0 b
Personnel employment		
Deployed		8%
Non-deployed		92%

Capability spending		
	Investment	Recurrent
land and mobility	25%	42%
air and naval	67%	46%
other capabilities	8%	12%
Budget		
general recurrent spending		\$14.7 b (67%)
capital investment		\$6.2 b (28%)
operational deployments		\$1.1 b (5%)

Defence spending

Through the late 1980s and 1990s, baseline defence spending was more or less constrained to no real growth. As a result, defence spending as a percentage of GDP fell from 2.5% in 1985 to 1.9% in 1999. Despite efficiency reforms during that period, the failure to meet the rising real cost of maintaining a modern defence force saw the ADF abandon capability, defer modernisation and reduce preparedness.

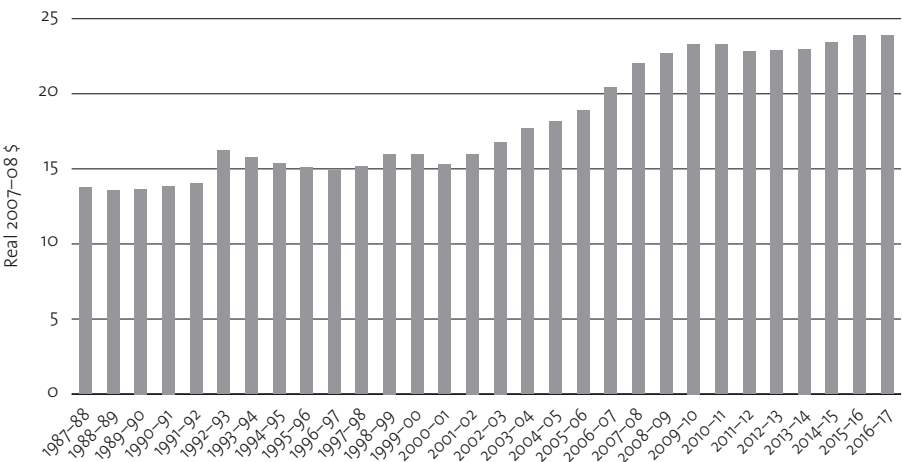
Acknowledging the need to rebuild the force—and encouraged by the experience of East Timor in 1999—the government promised a decade of 3% real growth in the 2000 Defence White Paper. Last year, that commitment was extended to 2016. Still further money has been made available including \$5 billion for military deployments, \$11.5 billion to expand the Army and more than \$10 billion for previously unplanned Air Force acquisitions. In addition, baseline funding for defence logistics has increased by \$660 million per annum and more than \$3.1 billion has been allocated for personnel initiatives across the forthcoming decade. Taken together, these initiatives constitute the largest and most sustained increase in Australian defence spending since the 1960s.

In 2007–08 the defence budget will be just under \$22 billion equivalent to 2% of GDP and \$2.1 billion higher than the previous year. Defence spending is projected to reach \$25 billion in 2010 and \$29.8 billion in 2017 measured in then-year dollars. An estimate of the real growth in defence spending can be calculated using the ABS consumer price index. On that basis, the defence budget has grown by 44% in real terms since the 2000 White Paper equivalent to compounding annual growth of 5.3%.

The largest share of the budget goes to general operating expenses (38%) followed by personnel (34%) and capital investment (28%). In terms of the three services, Army accounts for 33% of the recurrent budget followed by Navy 26%, Air Force 28%, military operations 8%, intelligence 3% and strategic policy 2%.

At 2% of GDP, defence spending is not anomalously high compared with historical levels (4.1% in 1968, 2.5% in 1986) or contemporary foreign benchmarks (United States 4%, United Kingdom 2.8%).

Real defence spending 1987–2016



All figures converted to 2007–08 dollars using Consumer Price Index (assumed to be 2.5% post 2008).

2007–08 Defence budget initiatives

This year’s budget was preceded by a number of significant mid-year commitments. 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 January 2007, 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 in early 2007 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).

Major pre-budget initiatives: \$11.3 billion	
Expansion of Army by 2,600 personnel to create two extra battalions	\$10 billion
Supplementation for Timor Leste, Solomon Islands, Afghanistan and Iraq	\$260 million
Additional funding for ADF recruitment and retention	\$1 billion

All figures represent funding spread over 11 years.

Having already committed in excess of \$10 billion, the government then went on to promise a further \$14 billion of spending in the 2007–08 budget:

- \$6.6 billion over 13 years (including \$6.1 billion across the forthcoming decade) to acquire twenty-four 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.
- \$2.1 billion for recruiting and retention over ten years to further increase the number of people who join and remain in the military. Initiatives include:
 - reform of the ‘other ranks’ pay scales (\$585 million)
 - enhanced financial assistance for home ownership (\$864 million)
 - further funding for Navy *Sea Change* program (\$86 million)
 - increased funding for marketing and branding activities (\$228 million)
 - enhanced technical trade training opportunities (\$71 million)
 - professional development for ADF medical officers (\$12 million)
 - expanded and enhanced cadets (\$100 million)
 - transition service for personnel considering leaving service (\$125 million).

- \$1.8 billion of additional logistics funding to alleviate a range of equipment obsolescence and inventory shortfall issues and enable enhanced maintenance, refits, and upgrades.
- \$1.3 billion to cover the personnel and operating costs of the C-17 aircraft that are now entering service.
- \$1.3 billion of supplementation for military operations; Iraq (\$389 million for one year), Afghanistan (\$703 million for two years) and Timor Leste (\$135 million for one year).
- \$954 million over the next ten years to cover additional payments to the Defence Housing Australia to satisfy the government’s competitive neutrality policy.
- \$382 million to enhance Australia’s security and intelligence capabilities made up of \$307 million for improved intelligence collection, processing and dissemination capabilities, and \$75 million for the Defence Signals Directorate.
- \$135 million over four years for enhanced protective security for Defence property and personnel in continuation of measures commenced in the aftermath of 9/11.

Major budget initiatives: \$14 billion	
Acquisition and through-life costs for 24 F/A-18F Super Hornet fighters	\$6.1 billion
Additional funding for recruitment and retention	\$2.1 billion
Further logistics funding	\$1.8 billion
C-17 strategic airlift capability through-life costs	\$1.3 billion
Operational supplementation	\$1.3 billion
Defence Housing Australia costs	\$954 million
Improved intelligence and security capabilities	\$382 million
Enhanced protective security	\$135 million

All figures represent funding spread over 10 years.

The initiatives in the 2007–08 budget, and those that preceded it mid-year, amount to a total commitment of more than \$25 billion extending over the forthcoming decade in addition to the 3% growth promised by the White Paper.

Nevertheless, 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 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 2008 or 2009. To exacerbate matters further, cost increases in the capital investment program in recent months amount to more than \$3 billion for which no additional funding has been made available.

If the government (or the present opposition should they win office) hope to deliver a defence force of the size and shape currently planned, substantially more money will be required.

Capital investment

In the 2000 White Paper the government outlined a decade-long program of capital investment that was detailed in the 2001 Defence Capability Plan (DCP) which listed 165 project phases with a total value of more than \$50 billion. Since then, the DCP has been updated in 2002 and comprehensively revised in 2004 and 2006. The present DCP covers the period 2006 to 2016 and lists 100 project phases valued at around \$51 billion in total.

More than \$40 billion worth of planned DCP projects have been approved since 2000. Over the same period, a further \$6.0 billion worth of non-DCP projects have been approved and granted separate funding. As impressive as these figures are, the government's plans to acquire and bring into service a new generation of military capabilities are far from assured.

Three problems have emerged. First, the cost of many individual projects has grown thereby reducing what can be accommodated within the DCP funding envelope. For example, the 2004 version of the DCP saw an average 20% increase in the cost of projects which resulted in an average one year delay. Similarly, the recent \$2.4 billion cost increase in the air warfare destroyer and amphibious vessel projects will translate into a further 6 month delay in the overall program at the present rate of spending. Second, the reduced package of projects has proved undeliverable with around \$2.1 billion worth of investment deferred over the past nine months alone. This reflects both the failure to approve new projects on schedule and the failure of firms to deliver what they have promised. Third, even when projects have been spending money and acquiring equipment, critical performance goals have all too often been missed thereby delaying the entry of capability into service.

Of the major projects planned in 2000 that are behind schedule, several stand out. The most costly is the \$3.5 billion AEW&C project that was to have delivered workable capability to the ADF in 2007 but which has been delayed two years. The longest delay belongs to the \$259 million air defence command and control project that has slipped six years from an in-service date of 2003 to 2009. One project of particular importance to the 'hardening and networking' of the Army that has been delayed is the \$617 million upgrade of the M113 armoured personnel carrier, originally due in 2005 but now expected in 2008. To this list of delays must be added the pre-White Paper 'legacy' projects that are yet to deliver including the \$1 billion Seasprite helicopter project (7 years late), the \$1.5 billion FFG frigate upgrade (3 years late) and the less well known \$628 million HF modernisation project (6 years late).

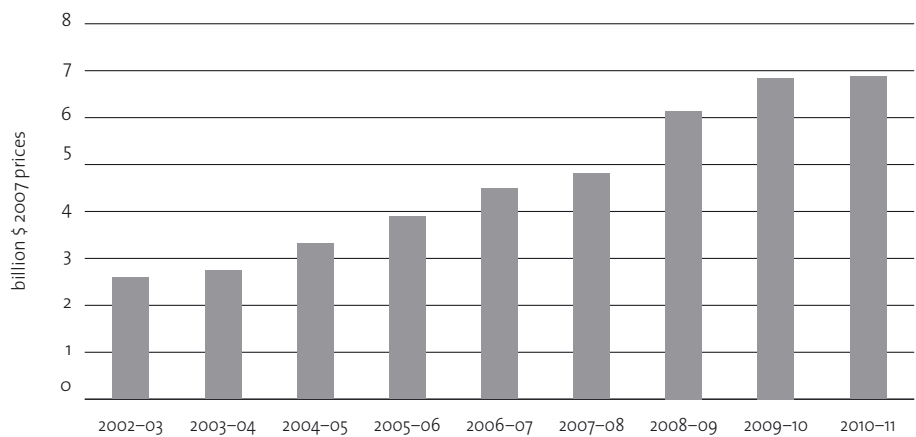
On the positive side, several large projects planned back in 2000 remain on schedule. These include the Navy's \$556 million patrol boat project and the upgrades to the Collins class submarines (\$835 million) and Hornet fighters (\$2.4 billion). And the reforms to defence procurement that the government adopted following the 2003 Kinnaird review are starting to be felt through the increased professionalisation of the Defence Materiel Organisation and improved analysis of projects prior to project approval. In addition, Defence has done a good job with rapid acquisitions in support of operational deployments, and several unplanned off-the-shelf foreign purchases have proceeded very smoothly. Not only has the \$558 million tank replacement project delivered ahead of schedule, but the \$2.1 billion C-17 strategic airlift acquisition saw approval, contract signature and initial delivery all within a single calendar year. In both cases, the government largely eschewed

Australian-unique specifications and purchased mature capabilities from established production lines overseas. Unfortunately, such an approach is the exception rather than the rule in Australian defence procurement.

Notwithstanding the ongoing difficulties with the acquisition program, investment spending is planned to increase by 44% over the next few years—from \$4.8 billion in 2007–08 to more than \$6.9 billion in 2010–11—a rate of increase significantly faster than that achieved in recent years. While some of the planned growth in investment spending will fund off-the-shelf overseas purchases, it is likely that the capacity of Defence and local industry to deliver will be stretched given the skills shortage in the broader Australian economy. Even if this were not the case, the ADF’s predilection for Australian-unique equipment solutions increases the likelihood that problems will arise; problems that will be exacerbated by the government’s continuing desire to duplicate foreign defence production facilities and take on the increased risks and costs of doing so.

On past experience, it is difficult to be optimistic about the prospects for the timely delivery of new equipment for the ADF. If the government is serious about re-equipping the ADF in the medium rather than extended longer term, it might have to build on recent successes and purchase non-developmental equipment off-the-shelf from established manufacturers.

Major capital equipment investment—past and future



Source: Defence annual reports and budget papers.

Personnel

The 2000 White Paper envisaged the ADF growing from a base of 50,350 full time personnel in 2001 to around 54,000 by 2010. This relatively modest increase was designed to provide sufficient personnel to operate the new capabilities being acquired under the DCP.

Over the first few years after the White Paper, good progress was made in growing the force, and in 2002–03 the ADF peaked in strength at 52,080. Unfortunately, this early success was soon reversed and the size of the ADF had fallen back to 51,150 by 2005–06. The setback was particularly disappointing given the \$500 million provided by the White Paper for personnel initiatives over the first half of the decade. Last year, in 2006–07, the ADF recorded its first increase in four years, albeit only a modest 316 additional personnel.

The problem is not spread evenly across the three Services. In recent years Navy has had the most serious difficulties followed by Army. Air Force, in contrast, is managing reasonably well. That said; all three services are experiencing problems with specific categories, especially those in high demand in the broader economy like skilled trades and professions.

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 the rate of recruitment of personnel and the rate at which they leave the organisation. The good news is that retention rates are consistent with those recorded over the past thirty years. This is an excellent result in light of Australia’s prevailing strong economic conditions and increasingly mobile civilian workforce. Especially so, given that the ADF is now much more geographically dispersed than in the past resulting in increased dislocation of families due to posting relocations.

While retention has held its own compared with historical levels, recruitment has been a consistent disappointment. In fact, for almost a decade, the ADF has not come close to meeting its recruitment targets, with shortfalls of 15% to 20% not uncommon.

Military recruitment target achievement											
	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.

Military 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.

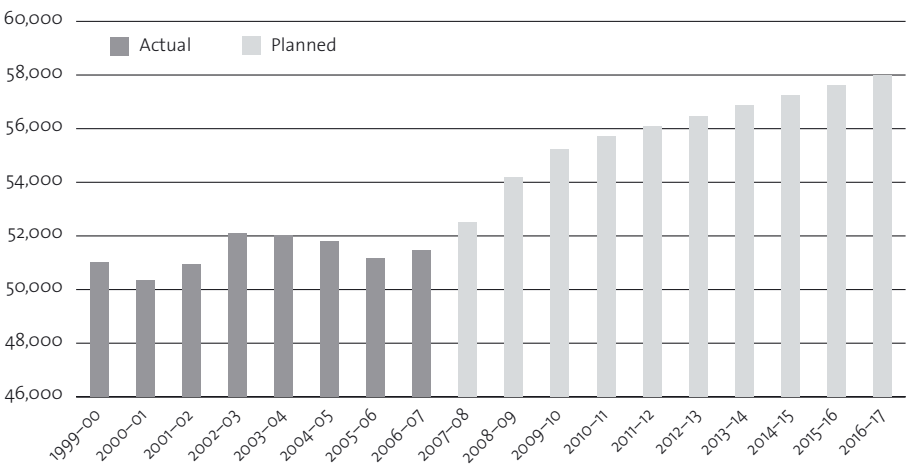
Notwithstanding recent difficulties, in late 2006 the government announced an expansion of the Army by two additional light infantry battalions. The battalions are planned to be in place by 2016, with the first battalion ready to deploy by 2010. In tandem with several other smaller adjustments to the force structure, the expansion of the Army elevates the required size of the ADF to 55,700 in 2010 and around 58,000 in 2016.

Understandably, the government is not taking the planned growth of the ADF for granted. Instead, over the past year they have allocated a total of \$3.1 billion across the decade to improve ADF recruitment and retention. The additional funding includes \$1.5 billion for improved personnel support and conditions broadly directed at retention, \$1.2 billion for recruitment including \$306 million for a ‘try before you buy’ gap-year program and \$348 million for targeted retention of high priority employment categories.

On the surface, the very large investment in improving support, conditions of service and thereby 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 lucrative civilian options, the present situation will surely deteriorate. Moreover, in absolute terms, the increase of roughly \$350 million per annum over seven years is a small part of the around \$7 billion per annum spent on military personnel expenses. Nevertheless, in the near term, the most cost-effective investments are undoubtedly those for targeted retention and improving recruitment.

The good news is that Defence is not facing a demographic problem; there are more than 2 million Australians between the ages of 18 and 25, of which no more than 6,000 need be recruited into the permanent force each year. It follows that there is no excuse for failing to deliver adequate numbers of personnel—especially now that additional resources have been made available. Success is imperative. With billions of dollars worth of new equipment being acquired, Defence must have adequate numbers of people to operate it.

Strength of permanent ADF—actual and planned



Source: Defence annual reports, budget papers and ASPI calculations.

Defence management

The management of Defence has improved in several respects over the past seven years. Reform of Defence procurement has made good progress, and although it is too early to judge the long-term outcome, early signs are encouraging. What is more, after several years of adverse audit findings, Defence's 2005–06 financial accounts were accepted with only minor qualifications. Just as importantly, Defence's near-term planning and budgeting is now much more effective than it was at the start of the decade.

That's not to suggest that the day-to-day management of Defence is on par, far from it. Despite recent progress, problems remain in many areas—sufficient for the government to commission a Defence Management Review (DMR) in August 2006. The final report from the DMR released earlier this year describes 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.

However, while the diagnosis is serious, the prescription offered by the DMR is cautious and measured. In total, the review made fifty-three recommendations in the areas of ministerial relations, accountability, organisational design and governance, personnel management, financial reform, information management and implementation. While in most cases the report's recommendations move Defence in worthwhile directions, it is neither a perfect nor complete blueprint.

For example, the proposal to effectively create an additional layer of management below the Secretary and Chief of the Defence Force is less than convincing. Although intended to improve ministerial support and policy coordination, the likely result will be an even more acute aggregation of decision-making upwards at the expense of delegation downwards—exactly the opposite of what's required.

The most serious omission concerns the Defence business model. While the DMR recognises the need for a model that aligns accountability and control of resources, it remains silent on the details of what an appropriate arrangement might be. Instead, it is left for Defence to formulate a new business model. It remains to be seen what they come up with; the fundamental question is whether the Service Chiefs are to be given greater control of the resources necessary for delivering military capability.

Finally, amidst the recent rush to expand and re-equip the ADF, the traditional priority for defence efficiency has slipped. Yet, despite acknowledging this fact, the DMR provides no concrete suggestions for driving future efficiency. This will likely prove unsustainable. Efficiency will become a critical issue as the real cost of maintaining a larger and better equipped defence force emerges in the years ahead.

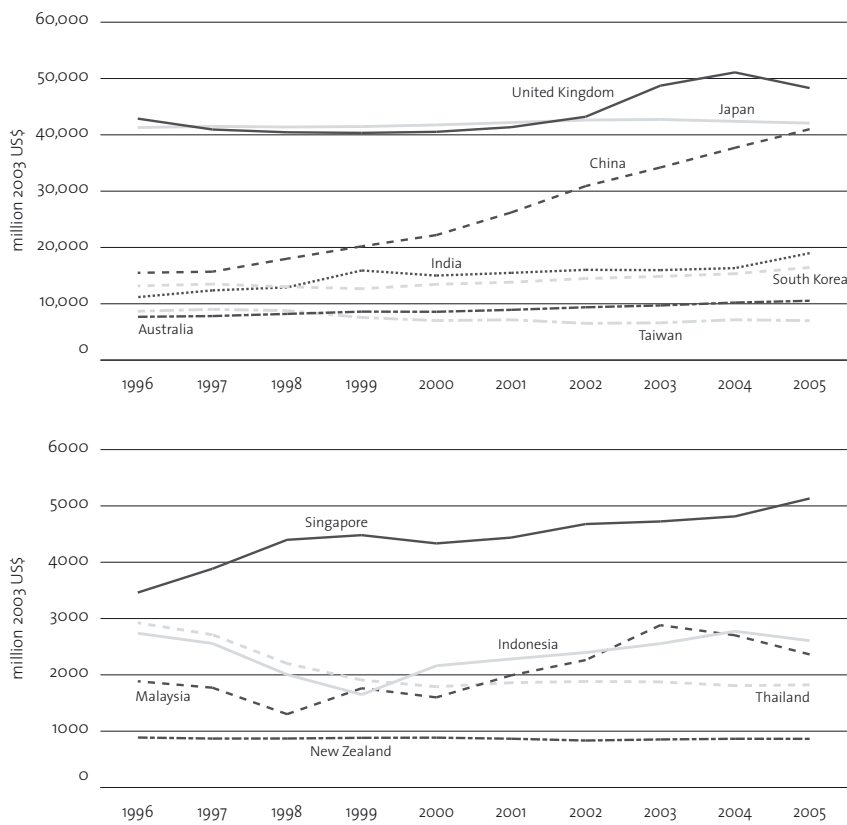
International comparison

According to the 2006 *SIPRI Yearbook*, Australia’s military spending ranked 13th in the world as measured in US dollars in 2004. Defence spending data for selected regional and allied countries appears below.

Selected international defence spending data for 2004					
Country	US\$	% GDP	Country	US\$	% GDP
United States	452,559	4.0	Australia	10,214	1.9
United Kingdom	51,088	2.8	Taiwan	7,168	2.5
Japan	42,395	1.0	Singapore	5,132	4.7
China	37,700	2.4	Indonesia	2,774	1.0
India	20,443	3.0	Malaysia	2,703	2.0
South Korea	15,344	2.4	Thailand	1,808	1.2
Canada	10,338	1.1	New Zealand	865	1.2

Trends in regional and allied defence spending for the past decade are set out in the two charts below. US defence spending, which is too high to be readily included on the same chart as other nations, has increased 50% in real terms over the past decade—a growth only outdone by that of China which has boosted its spending substantially as its economy has grown.

Trends in defence spending



Source: SIPRI 2006 Yearbook, all figures in constant US dollars at 2003 prices and exchange rates.

About the Author

Prior to joining ASPI, **Mark Thomson** held a number of positions in Defence working in the areas of capability development and resource management. In 1999 he was Political Military Adviser to Major General Peter Cosgrove during the INTERFET operation. Prior to his time with Defence, Mark held a series of academic research and teaching positions in theoretical physics.

Tell a friend about ASPI

Join Australia's liveliest minds writing today on defence and strategic issues. ASPI will produce up to ten issues each of ***Strategy*** and ***Strategic Insight*** and a number of ***Special Reports*** on issues of critical importance to Australia and the Asia-Pacific each year.

Thoughtful, ground-breaking and often controversial, ASPI leads the public debate on defence and security issues.

Membership benefits include:

- Hard copy publications posted free upon release
- Newsletter reporting on ASPI activities
- 15% discount for attendance at ASPI lunches
- Savings on conference attendance
- Online access via the Members area.

Individual membership—

1 year \$199; 2 years \$378; 3 years \$537

Student membership—

1 year \$99; 2 years \$188; 3 years \$263

Corporate membership—

1 year \$649; 2 years \$1233; 3 years \$1752

To join ASPI do one of the following:

- 1) Subscribe online www.aspi.org.au
- 2) Phone +61 2 6270 5100
or fax + 61 2 6273 9566
- 3) Email to enquiries@aspi.org.au

Important disclaimer

This publication is designed to provide accurate and authoritative information in relation to the subject matter covered. It is provided with the understanding that the publisher is not engaged in rendering any form of professional or other advice or services. No person should rely on the contents of this publication without first obtaining advice from a qualified professional person.

About Special Reports

Generally written by ASPI experts, Special Reports are intended to deepen understanding on critical questions facing key strategic decision-makers and, where appropriate, provide policy recommendations. In some instances, material of a more technical nature may appear in this series, where it adds to the understanding of the

issue at hand. Special Reports reflect the personal views of the author(s), and do not in any way express or reflect the views of the Australian Government or represent the formal position of ASPI on any particular issue.

ASPI

Tel +61 2 6270 5100

Fax + 61 2 6273 9566

Email enquiries@aspi.org.au

Web www.aspi.org.au

© The Australian Strategic Policy Institute Limited 2007

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