

Audit Report No. 27 2008-09

Management of the M113 Armoured Personnel Carrier Upgrade Project

Introduction

- 3.1 M113s are the only tracked vehicle in the Australian Defence Force's (ADF's) fleet of armoured troop transports used for transporting and supporting infantry in a battlefield. M113s first saw service with the ADF during the Vietnam War and are undergoing a major upgrade to improve protection, lethality, mobility and habitability.
- 3.2 Currently, 431 upgraded M113s are on order for delivery by the end of 2011 under Project Land 106: Upgrade of M113 Armoured Vehicles. The initial purchase in July 2002 of 350 upgraded vehicles for delivery by December 2010 was extended in December 2008 to include an additional 81 upgraded M113s as part of the Enhanced Land Force (ELF) initiative.¹

¹ See the Hon Joel Fitzgibbon MP, Minister for Defence (2008), *Government approves additional armoured personnel carriers*, Media Release 148/2008, 28 October. In December 2008, the Government purchased the additional vehicles as part of the ELF initiative, announced in 2006 at a total approximate cost of \$4.1 billion. ELF is intended to provide Army with a range of additional equipment, among which are additional upgraded M113s.

- 3.3 With the total anticipated expenditure in the order of \$1 billion², the upgrade is one of Defence's top 30 projects by forecast 2008-09 expenditure, with some \$100 million in expenditure under Project Land 106 forecast for this financial year.³
- 3.4 Upgraded M113s are to be a core component of the ADF's capability. They are fundamental equipment for Army's two mechanised battalions, the 5th and 7th Royal Australian Regiments (7 RAR and 5 RAR), and are currently forecast to be in service until 2020.⁴
- 3.5 The Australian National Audit Office (ANAO) previously examined the Department of Defence's (Defence's) progress in delivering this project in Audit Report No. 3 2005-06, *Management of the M113 Armoured Personnel Carrier Upgrade Project*. Given the continuing significance of this project and developments since the 2005-06 audit, the ANAO scheduled this audit to provide updates on the progress against Project Land 106's stated schedule, cost and technical performance objectives, and on Defence's implementation of the recommendations and findings of the previous audit.

The Audit⁵

Audit objectives and scope

- 3.6 The objectives of this audit were to assess:
- the progress of the M113 Armoured Personnel Carrier Upgrade Project against stated schedule, cost and technical performance objectives; and
 - Defence Materiel Organisation's (DMO's) progress in implementing the recommendations and addressing the findings of ANAO Audit Report

2 Expressed in January 2009 prices. The estimate comprises the approved budget of \$648 million for the first 350 vehicles, and additional \$241 million for the 81 ELF vehicles, along with estimates of the additional costs of preparing and extending the vehicle hulls prior to upgrade, and those of Defence project staff.

3 Department of Defence (2008), *Portfolio Budget Statements 2008-09*, p. 166.

4 The 81 additional ELF vehicles will allow these two mechanised battalions (established under the Hardened and Networked Army initiative announced in 2005 at a cost of approximately \$1.5 billion) to operate M113s exclusively rather than mixed fleets of M113s and Bushmasters. See Department of Defence (2007), *Australia's National Security: A Defence Update 2007*, p. 51.

5 In this chapter, all references to 'the audit' are references to Audit Report No. 27 2008-09, unless specified otherwise.

No. 3 2005-06, *Management of the M113 Armoured Personnel Carrier Upgrade Project*.

- 3.7 The audit covers significant developments since the previous audit, including contract negotiations and outcomes, the commencement of final production, and the initial introduction into service of the upgraded vehicles. The ANAO visited production facilities to examine the arrangements for final production of the upgraded M113s, and 7 RAR at 1 Brigade in Darwin to examine vehicle logs, reports of defects and faults, and the current state of the upgraded M113 capability.

Overall audit conclusion

- 3.8 The ANAO made the following overall audit conclusion:

The M113 Major Upgrade Project commenced in July 2002 and has suffered a series of delays. Army has so far received 42 of the 350 vehicles to be upgraded. Of these, 16 are in service with 7 RAR, five are awaiting issue to units and the remaining 21 are allocated primarily to driver and crew training units.

Many of the initial technical difficulties with the Project were resolved by the end of 2007, at which time extensive negotiations with the Prime Contractor were successfully concluded. Those negotiations enabled final production to get underway and reaffirmed the December 2010 delivery date.

Subsequently, however, production has been slow. In July 2008, the Prime Contractor informed Defence that the existing production facilities at Bandiana, Victoria, were not adequate to the task and, at December 2008, there was a potential shortfall of around 100 upgraded vehicles by December 2010.

Defence is currently working with the Prime Contractor on measures to improve and expand the M113 production facilities and recover the anticipated production shortfall. On 28 October 2008, the Minister for Defence announced that additional production will occur at Williamstown, Victoria, and Wingfield, South Australia. ANAO notes that recovering the production schedule will be challenging.

Defence advised that the upgraded M113s achieved a limited Initial Operational Capability as of December 2007 and could, if circumstances required, be deployed. However, Defence has yet to complete the Operational Testing and Evaluation of the upgraded vehicles, which is necessary to achieve Operational Release. In

light of increasing threats, Defence is considering additional protection for its M113s, at a potential additional cost of up to \$0.2 million per vehicle, if they are deployed on more hazardous missions.

As of September 2008, the 16 upgraded M113s delivered to 7 RAR had travelled less than 1,000 kilometres. They were first used in a training exercise in November 2008 and, by December 2008, had travelled almost 9,000 kilometres. Defence advised ANAO in December 2008 that, notwithstanding delays in the delivery of the upgraded M113s, demands on capability had been manageable. This was due, in part, to Defence's ability to use alternative armoured troop transports, and because troops who would otherwise have been assigned to M113s were necessarily deployed elsewhere on operations. Defence advised ANAO in December 2008 that:

The development of the [*upgraded M113*] capability is adversely impacted by support to operations. This cost has been assessed and accepted by Chief of Army as Capability Manager. Indeed, the cost is manageable within Army's wider priorities and strategic guidance.

- 3.9 Until it receives all its upgraded vehicles, Defence will continue to operate its fleet of original M113s, many of which are over 35 years old. At the time of this audit, Defence's assessment was that there were no viable alternatives to the upgraded M113.⁶
- 3.10 The ANAO identified significant progress since the previous audit. To control scope changes, Defence specified and applied financial thresholds for the approval of changes to capital acquisition projects. To complement these arrangements, ANAO recommended Defence develop additional guidance to ensure that appropriate levels of approval are sought for scope changes that affect capability.
- 3.11 The ANAO found that Defence had successfully recovered against deliverables outstanding prepayments identified in the previous audit. However, it was difficult to establish with certainty the financial and other benefits accruing to the Commonwealth by making substantial prepayments under the Major Upgrade Contract. Consequently, ANAO recommended that Defence develop clear policy guidance on the circumstances in which prepayments will be considered for inclusion in future major acquisition contracts.

6 Australian National Audit Office (ANAO) Audit Report No. 27, 2008-09, p. 15.

- 3.12 Defence has put in place a suite of guidance and instructions to staff responsible for administering liquidated damages. In the case of the Major Upgrade Contract, administration was hampered by complex arrangements that applied liquidated damages to approximately 3100 contract milestones. ANAO has recommended that liquidated damages arrangements in future major acquisition contracts apply to clearly identified, key contract milestones.
- 3.13 Defence provided evidence of its effective oversight of technical issues in the development of the upgraded M113s.⁷

ANAO recommendations

- 3.14 The ANAO made the following recommendations:

Table 3.1 ANAO recommendations, Audit Report No. 27 2008-09

1.	ANAO <i>recommends</i> that Defence and DMO set suitable threshold criteria for determining changes in scope to acquisition projects and promulgate advice to staff to allow decision-makers to be provided with sufficient, consistent and appropriate information and advice on potential scope changes.
	<i>Defence response: Agreed</i>
2.	ANAO <i>recommends</i> that Defence develop clear policy guidance on the circumstances in which prepayments will be considered for inclusion in future major acquisition contracts, and maintain an appropriate record of the basis for agreeing to advance payments as part of contract negotiations.
	<i>Defence response: Agreed</i>
3.	ANAO <i>recommends</i> that Defence ensure that liquidated damages arrangements in future major acquisition contracts apply to clearly identified, key contract milestones.
	<i>Defence response: Agreed</i>

The Committee's review

- 3.15 The Committee held a public hearing on Monday 15 June 2009, with the following witnesses:
- Australian National Audit Office (ANAO);
 - Defence Materiel Organisation (DMO); and

⁷ Audit Report No. 27, 2008-09, pp. 14-16.

- Department of Defence (Defence).

3.16 The Committee took evidence on the following issues:

- scope changes;
- capability of the M113;
- timely delivery of the project; and
- value for money.

Scope changes

3.17 The Committee noted there were inconsistencies in what constituted a scope change, asking Defence and DMO for more information. DMO replied that existing policy had been examined, and a review had been conducted. DMO reported that the Defence Procurement Policy Manual (DPPM) was the primary reference document for procurement, and that it complied with Commonwealth legislation and policy as well as internal Defence guidelines. The DPPM addressed the issue of scope changes:

Where the proposed contract amendment will increase the value of the contract, Proposal Approval must also be exercised for the additional amount.⁸

3.18 DMO also noted that there were specified financial thresholds for the approval of changes to capital acquisition projects via DMO instructions.⁹

3.19 The Committee asked whether it was as simple as applying a ratio that would not be proceeded past. DMO replied:

There are a number of delegations and a number of checks and balances that we go through in determining the scope. It involves both Defence and DMO – that is, Defence delivering the project in accordance with the requirements of Defence represented by capability development in this case. Our responsibility is to look at that change in scope – whether it is within the comprehension of the contract and government approval and certainly look at the value and magnitude of it. It is not just a financial consideration; it is about whether it breaches or is comprehended by the intent and the actual government approval. So there are processes there for

⁸ Department of Defence, *Defence Procurement Policy Manual*, Chapters 6 and 7.

⁹ Mr Colin Sharp, Defence Materiel Organisation (DMO), p. 17. All references to witnesses' evidence comes from the Committee's hearing into this audit dated 15 June 2009, with page numbers relating to the Proof Committee Hansard.

us to review that, have a look at it and then bring it to government if we feel it needs government approval.¹⁰

- 3.20 The Committee asked what had been done to ensure decision makers were provided with sufficient, consistent and appropriate information and advice on potential scope changes. DMO replied that there was a clear process in place in the documentation, and that ‘administrative discipline’ was required to ensure those processes were followed.¹¹
- 3.21 The Committee is pleased to see that the agencies have accepted ANAO Recommendation No. 1, and that DMO believes appropriate processes are in place to inform decision makers on potential scope changes. However, the Committee is somewhat concerned that staff may be unaware of the processes currently in place for providing advice on potential scope changes, and recommends:

Recommendation 6

That the Defence Material Organisation (DMO) provide a brief report to the Joint Committee of Public Accounts and Audit (JCPAA) within six months of the tabling of the Committee’s report on the steps taken to ensure DMO staff adhere to the existing processes to inform decision makers of scope changes.

Capability of the M113

- 3.22 The Committee inquired into the capabilities of the upgraded M113, noting that the vehicles were not currently suited to operating in Afghanistan.
- 3.23 Defence replied that the M113s provided a capability in various types of terrain and environments, and while they were suited to the terrain of Afghanistan, they were not suitable to operate in the current threat environment. Defence reported that the best combat vehicle for the current threat environment in Afghanistan was the ASLAV, and the best general duties vehicle was the Bushmaster. Defence noted that the M113 could be deployed to Afghanistan, but that it would require additional protection due to the current threat environment.¹²

10 Mr Colin Sharp, DMO, p. 17.

11 Mr Colin Sharp, DMO, p. 17.

12 Brig. Mal Rerden, Department of Defence (Defence), p. 20.

- 3.24 The Committee asked whether there was an identified need to upgrade the M113s to deal with rocket propelled grenades (RPGs) and Improvised Explosive Devices (IEDs), two key elements of the threat environment in Afghanistan.
- 3.25 Defence replied that this was the focus of the contract, and that they were also testing passive protection measures used overseas, as well as developing their own passive protection measures independently.¹³ Further, Defence noted that the M113s would 'probably not' be deployed in a place where there is sustained close combat expected on a daily basis.¹⁴

Timely delivery of the project

- 3.26 The Committee asked about the likelihood of the M113 upgrade being completed by its deadline. DMO replied that the project had been running a year late for several years, but that it was anticipated that the project would still be completed a year late. DMO noted, however, that the completion of the project by that deadline was still assessed as being 'high risk', but that there were incentives in place to encourage the company to complete the project by December 2010, still one year late.¹⁵
- 3.27 The Committee is concerned that the delivery of the M113 upgrades may yet be delayed further, and recommends:

Recommendation 7

That the Department of Defence and the Defence Materiel Organisation (DMO) provide the Joint Committee of Public Accounts and Audit (JCPAA) with a brief report detailing the progress of the M113 upgrade process, and the likelihood of the project being completed by the revised target date of December 2010.

Value for money

- 3.28 The Committee expressed its concern about the value for money obtained through the upgrade. It asked Defence whether, during the time the

13 Brig. Mal Rerden, Defence, p. 20.

14 Brig. Mal Rerden, Defence, p. 21.

15 Mr Colin Sharp, DMO, p. 18.

upgrade was being considered, any thought had been given to buying new vehicles, rather than upgrading the M113.

- 3.29 Defence replied that the terms of reference for the review into the business case for the M113 upgrade included a review of further alternatives, including the acquisition of a new vehicle. Defence rejected the purchase of the US Bradley, or similar vehicle, on several grounds:

Vehicles such as the US Bradley are prohibitively expensive. The need for a tracked capability (for mobility reasons in close combat in difficult terrain) was also restated by capability staff as the reason for rejecting replacement of the M113 fleet with a wheeled vehicle (and new wheeled vehicles such as ASLAV are also more expensive than an upgraded M113).

This assessment remains current. To use the Bradley example, the vehicle carries half the troops in comparison to the M113, and therefore Defence would need to buy twice the number of vehicles. Secondly, the Bradley costs four times the M113 upgrade cost and thirdly, the Bradley is 30 tonne and cannot be deployed by C130 (C17s are not suitable for the small dirt strips in our region).¹⁶

- 3.30 The Committee noted that a lot of money was being spent on the M113 for little return, comparing it to the Super Seasprite, a Defence procurement project that has been shelved. DMO replied that the Army considered the M113s to be capable assets that are useful, and that the Army would need within the next ten to twenty years due to conditions in Northern Australia and other tropical areas.¹⁷

Conclusion

- 3.31 The Committee believes more must be done within DMO to ensure its staff are aware of their responsibilities to report potential scope changes to key decision makers, and believes the implementation of its recommendation would be of benefit.
- 3.32 The Committee is concerned that the prospect of the M113 upgrade project's timely delivery is still assessed as 'high risk', and is extremely

¹⁶ Department of Defence, *Submission No. 5*, p. 1

¹⁷ Mr Kim Gillis, DMO, p. 18.

interested in ensuring the project is completed in a timely manner, and wishes to remain informed about the progress of the project.

- 3.33 The Committee is encouraged to see that alternatives to the M113 upgrade were considered, and that both operational requirements and value for money were primary considerations of Defence and DMO.
- 3.34 The Committee acknowledges that the M113 is not currently considered to be able to be deployed in Afghanistan due to its unsuitability to the current threat environment, and expresses its hope that it will be able to be readily deployed to other more suitable environments if it is required.
- 3.35 On a related matter, the *Defence Major Projects Report* initiated with the JCPAA's support in 2008 is an important initiative which will give the Parliament an improved capacity to track the progress of major projects such as the M113 project while they are still in train, rather than relying on the scrutiny of individual projects after projects have been completed.
- 3.36 Further, the Committee has also decided to continue to scrutinise Defence major capital equipment projects, resolving to review ANAO Audit Report No. 48 2008-09 *Planning and Approval of Defence Major Capital Equipment Projects* which examined the strengthened "two-pass" process for major capital equipment projects implemented following the Kinnaird review as the first post-Kinnaird review audit.