

**Ministry of Defence and
New Zealand Defence Force:
Further report on the acquisition
and introduction into service
of Light Armoured Vehicles**

December 2004

*This is the report of a performance audit that we carried out
under section 16 of the Public Audit Act 2001.*

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Foreword

This is the second report from my Office in regard to the acquisition of 105 Light Armoured Vehicles for the New Zealand Army.

The findings of my follow-up audit are significant not only for the Defence agencies, but for capital purchasing in the wider public sector. It is important that proposals for the investment of public money include robust and realistic assessments of the financial and other implications of the purchase.

It is also important that Cabinet is informed of changes in regard to a major capital purchase that are made subsequent to Cabinet giving approval in principle for that purchase.

I thank the Defence agencies for their co-operation during the audit.

A handwritten signature in black ink, consisting of a long horizontal stroke followed by a large, looping flourish that curves upwards and then back down to the right.

K B Brady
Controller and Auditor-General

17 December 2004

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Summary and recommendations

This is our second report into issues relating to the acquisition of 105 Light Armoured Vehicles (LAVs) for the New Zealand Army (the Army).

In our first report *Ministry of Defence: Acquisition of Light Armoured Vehicles and Light Operational Vehicles* in August 2001, we highlighted problems within the Defence agencies – in this context, the Ministry of Defence (MoD), the New Zealand Defence Force (NZDF), and the Army – in the areas of governance, relationships, accountabilities, and defence planning.

In our follow-up audit, we looked to see if progress had been made since our first report, and also examined issues arising from the introduction into service of the LAVs.

Background

In January 2001, the Government signed a contract to purchase 105 LAVs at a cost of \$652.833 million (GST-inclusive), plus the cost of foreign exchange cover. The cost of foreign exchange cover for the LAV project has varied since the original contract was signed, but the total capital cost has remained the same.

The LAVs have been delivered on budget and on time, and acceptance testing is due to be completed in December 2004. There was a delay of about 6 months from the schedule originally agreed, but this was because it was decided to take advantage of installing the latest generation 28-volt electric drive turret on the vehicle.

The August 2000 paper that put options to Cabinet for the purchase stated that acquiring 105 LAVs would enable the Army to deploy a battalion of 51 LAVs and to sustain that deployment by rotating it with an identical LAV battalion.

The Army is planning to use the LAVs in the context of the 8 May 2001 *Government Defence Statement* and the outputs listed in the *NZDF 2004/2005 Output Plan*. The 8 May 2001 Statement described the number of personnel in a battalion group deployment – 600-900 for a 12-month commitment, and 900-1200 for a 6-month commitment.

The *Output Plan* includes 2 targets for the introduction into service of the LAVs:

- a LAV company group to be at the directed level of capability by December 2004; and
- a LAV battalion group to be at the directed level of capability by December 2005.

(The term “directed level of capability” (DLOC) refers to the standard level of preparedness of a military unit or force when not deployed. For deployment, the level of preparedness is increased to “operational level of capability” (OLOC). The NZDF is

funded to maintain DLOC in order to provide the Government with options for the commitment of a military force.)

Our findings

The rationale for purchasing 105 LAVs was to allow the Army to fully rotate a battalion of 51 LAVs.

The Army's current plan for using the LAVs is significantly different to that originally put to Cabinet. The Defence agencies consider that the Army is now no longer required to operate the LAVs in the manner set out in the August 2000 Cabinet paper. In our view, the Defence agencies should have advised Cabinet of this change. We saw no evidence that this had occurred.

We tried to establish whether 105 LAVs were needed to meet current requirements under the 8 May 2001 Statement and the NZDF *2004/2005 Output Plan*. We were unable to do this because of the large degree of flexibility built into these requirements. However, in our view, it could be possible for the Army to deliver its obligations under the 8 May 2001 Statement and the NZDF *2004/2005 Output Plan* with fewer than 105 LAVs.

The August 2000 Cabinet paper that contained options for the purchase of the LAVs, and established the rationale referred to above, did not include necessary assessments of:

- how and when the Army would be able to deploy and sustain a motorised battalion group;
- the personnel implications for the Army; and
- the level of funding required for several other aspects of the project.

As a result, the LAV project has faced funding and personnel shortfalls. The Defence agencies have put a lot of effort into resolving these issues. While there were some inaccuracies and a lack of clarity around the resolution of funding for spare parts in particular, we acknowledge that the Defence agencies have had to manage these funding shortfalls in accordance with the clear Government direction that no additional capital funding would be allocated to the LAV project.

We also note that the Defence agencies have introduced a new Capability Management Framework that is designed to ensure that future proposals are supported by better analysis. In order to help achieve this, there has been a significant commitment to life cycle costing analysis throughout all the Defence agencies.

Our first report, and a subsequent MoD Evaluation Division report, made specific recommendations about how governance over the LAV project could be improved. In our follow-up audit, we noted some problems during the introduction of new governance systems, but are satisfied that the Defence agencies have generally improved the level of governance over the LAV project.

Recommendations

We make 9 recommendations in relation to the LAV project, military capability acquisition projects in general, and the Capability Management Framework. They are:

Recommendation 1

We recommend that the full effect of the personnel shortage in relation to the Light Armoured Vehicle project be assessed. This should include implications for LAV project goals, and for non-LAV units. The assessment information should be periodically updated and reported to the Executive Capability Board.

Recommendation 2

We recommend that early and full consideration be given to all financial implications of proposed military capability acquisitions. These implications need to be factored into proposals and supporting documents seeking Cabinet approval.

Recommendation 3

We recommend that thorough capability planning be undertaken, under the Capability Management Framework, to identify all of the personnel implications associated with the acquisition of a new military capability. The personnel implications should be based on robust and realistic assessments, and be clearly expressed in proposals and supporting documents seeking Cabinet approval for an acquisition.

Recommendation 4

We recommend that, when the planned use of a new military capability changes from what was approved by Cabinet, the reasons for, and the nature of the changes, are clearly documented and returned to Cabinet for approval.

Recommendation 5

We recommend that the Capability Management Framework be amended to ensure that all the important issues relating to military capability acquisition projects are brought to the Executive Capability Board for discussion. This should happen even for issues that are the sole responsibility of one of the Chief Executives.

Recommendation 6

We recommend that reservations and risks relating to early funding estimates for any project items be explicitly stated in papers seeking Cabinet approval, in order to give decision-makers the best and most complete information possible. These risks should be regularly reviewed and estimates updated periodically.

Recommendation 7

We recommend that – for major military capability acquisition projects – the analysis undertaken to support proposals put to Cabinet for approval be subject to independent review. This review should examine the financial and technical details of the proposal. In cases where an independent review is not considered necessary, the reasons why not should be identified.

Recommendation 8

We recommend that every effort be made to negotiate any Logistic Support Agreement concurrently with the prime contract, when seeking to secure support services for future military capability acquisitions.

Recommendation 9

We recommend that life cycle costing analysis be completed for the Light Armoured Vehicle project, as required by the Capability Management Framework, including a calculation of the whole-of-life costs for the 105 LAVs. These costs should continue to be monitored throughout the life of the LAVs, in order to assist with re-adjusting operating baselines.

Part 1 – Background

Introduction

- 1.1 This is our second report into issues relating to the acquisition of Light Armoured Vehicles (LAVs) for the New Zealand Army (the Army).
- 1.2 In August 2000, Cabinet approved in principle the purchase of 105 LAVs. Cabinet had earlier, in July 1999, approved in principle the purchase of 308 military Light Operational Vehicles (LOVs)¹. LAVs carry troops and provide gunfire support in battlefield situations, and LOVs are all-wheel-drive vehicles that are used for purposes such as transporting ammunition, equipment, and supplies. The proposed purchases represented the Army's largest re-equipment programme since World War II.
- 1.3 In November 2000, the Secretary of Defence asked the then Auditor-General to undertake a review of the processes used in the acquisition of both the LAVs and the LOVs. Our report on that review – *Ministry of Defence: Acquisition of Light Armoured Vehicles and Light Operational Vehicles* – was published in August 2001.

The main parties

- 1.4 The 3 main parties involved in the matters covered in this report are:
- the Ministry of Defence (the MoD);
 - the New Zealand Defence Force (the NZDF); and
 - the Army.
- 1.5 Each party has individual responsibilities and accountabilities under the Defence Act 1990 (the Act). For ease of reading, we use the term Defence agencies when referring to all 3 parties.

Responsibilities of the main parties

- 1.6 The Act sets out the roles and responsibilities of the Secretary of Defence and the Chief of Defence Force.

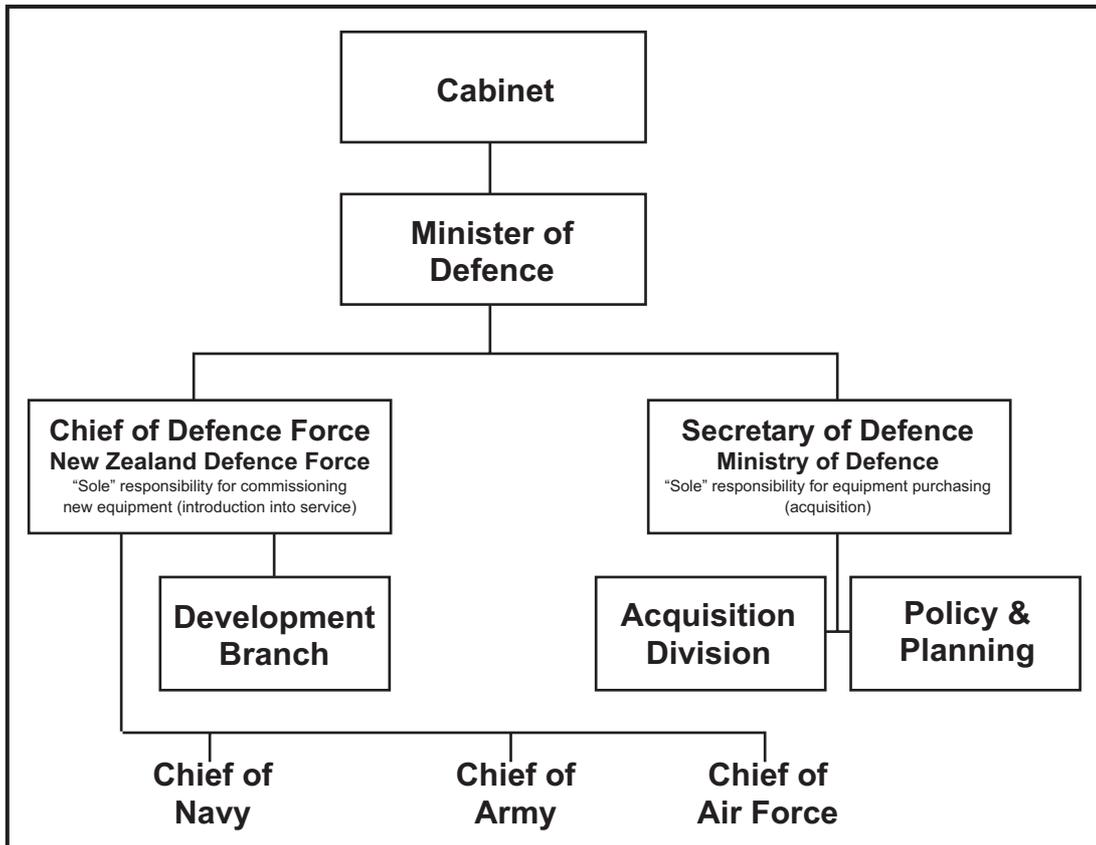
¹ The tender for the LOVs was cancelled in May 2000 pending an inquiry into the conduct of the tender. The tender process was subsequently restarted. The Minister of Defence signed contracts in March and June 2004 to purchase a total of 321 LOVs. Delivery of the vehicles began in October 2004.

- 1.7 The Secretary of Defence (who heads the MoD) is the principal civilian adviser to the Government. As Chief Executive of the MoD, the Secretary of Defence has responsibility for:
- advising the Government on defence policy; and
 - purchasing military equipment.
- 1.8 The Chief of Defence Force is the principal military adviser to the Government, and commands the NZDF (comprising the 3 armed services – the Army, the Royal New Zealand Navy, and the Royal New Zealand Air Force). The Chief of Defence Force is responsible to the Minister of Defence (the Minister) for:
- carrying out the functions and duties of the NZDF;
 - the general conduct of the NZDF; and
 - the efficient, effective, and economic management of the activities and resources of the NZDF.
- 1.9 The Chief of Army commands the Army, and is responsible to the Chief of Defence Force for the implementation of policies, plans, and programmes in relation to the Army. The Chief of Army is responsible to the Minister, through the Chief of Defence Force, on any matters relating to the Army.
- 1.10 Section 31 of the Act requires the Secretary of Defence and the Chief of Defence Force to consult each other in relation to any advice that either of them intends to give to the Minister on major matters of defence policy.
- 1.11 In June 2000, the Government announced that it intended to review the accountabilities and structural arrangements between the MoD, the NZDF, and the 3 armed services. The review, undertaken by former State Services Commissioner Mr D. K. Hunn, was released in March 2003.
- 1.12 After the Hunn Review, the Minister directed the Secretary of Defence and the Chief of Defence Force to achieve greater co-operation and collaboration between their agencies. In particular, the Minister directed that accountabilities be assigned on a “shared”, “prime” and “sole” basis².
- 1.13 In relation to planning for and investing in new equipment, the Secretary of Defence and the Chief of Defence Force have “shared” responsibility for analysing future needs and setting out the requirements of the military.
- 1.14 The Secretary of Defence has “sole” responsibility for equipment purchasing (known as “acquisition”), while the Chief of Defence Force has “sole” responsibility for commissioning new equipment (known as “introduction into service”).

² The Hunn Review stated that, under “shared” accountability, “*both principals would be equally accountable for results*”, whereas for “prime” accountabilities “*the process itself would be collegial, [but] one person would assume the lead role and be responsible and accountable...“Prime” responsibility [goes] well beyond the normal expectations of consultation and requiring the full involvement of all parties.*”

- 1.15 Figure 1 below shows the organisational structure of the Defence agencies in relation to the acquisition of military capability³, such as the LAVs.

*Figure 1
Organisational structure relating to the acquisition
of military capability*



The purchase of Light Armoured Vehicles

- 1.16 The Government signed a contract on 29 January 2001 with a Canadian company, General Motors Defence – now called General Dynamic Land Systems (General Dynamics) – to purchase 105 LAVs.
- 1.17 The LAV project⁴ represents a considerable investment of public money. Figure 2 on the opposite page shows that the cost of foreign exchange cover for the LAV project has varied since the original contract was signed, but the capital cost has remained the same.

³ The term “capability” refers to the equipment, and the training and infrastructure that must be put in place for the effective use of the equipment.

⁴ We use the term “LAV project” to collectively describe the acquisition and introduction into service of the LAVs.

Figure 2
Total cost of the Light Armoured Vehicle project

	January 2001 contract signing \$m	Ministry of Defence Annual Report 2004 \$m
Capital cost of the 105 LAVs as per contract	652.833	652.833
Foreign exchange cover	24.631	15.078
Total cost	677.464	667.911

- 1.18 At the time the contract was signed, the annual operating cost for the LAVs was estimated at \$39 million (including about \$30 million a year in depreciation). The Army's current estimate of steady-state⁵ annual operating cost for the LAVs is \$48.8 million (including about \$35.1 million a year in depreciation). Each LAV has a life expectancy of 25 years.
- 1.19 The LAVs are central to the future role of the Army. The vehicles are the main platform in the significant change from the Army's traditional light infantry role to a motorised light infantry configuration.
- 1.20 The LAVs have been delivered on time⁶, and the capital cost of the acquisition is within budget. The first batch of 7 LAVs was delivered in August 2003, and the NZDF expects to have received and accepted⁷ 104 LAVs by the end of 2004. One LAV will remain in Canada until late-2005 for the purpose of testing add-on armour options.
- 1.21 The NZDF *2004/2005 Output Plan* states 2 targets for the introduction into service of the LAVs. These are, to have:
- a motorised company group to be at the directed level of capability by December 2004; and
 - a motorised battalion group to be at the directed level of capability by December 2005.
- 1.22 Descriptions of these groups as units within the Army are explained in Figure 3 on the next page.

⁵ From the time that all of the LAVs are in service with the Army.

⁶ The timetable for delivery was extended by about 6 months from the schedule originally agreed. This was because it was decided to take advantage of installing the latest generation 28-volt electric drive turret on the vehicle.

⁷ Each LAV is tested upon delivery, before being formally accepted by the Army.

Figure 3
*Units of the Army**

<p>Company and Company group</p>	<p>A group of 100-150 infantry soldiers commanded by a major. A company normally consists of 3 to 5 platoons, a small headquarters, and a small logistic organisation. For some very small-scale operations it may be appropriate to deploy a company group, which would be a company reinforced with those capabilities necessary to allow it to operate independently.</p>
<p>Battalion</p>	<p>A battalion consists of 3 to 6 companies (including a reconnaissance company), a headquarters, and a logistic organisation, and is usually commanded by a lieutenant colonel. A battalion may have pooled combat support assets used to reinforce companies. A battalion is capable of conducting independent operations, usually as part of a larger formation. A battalion, as well as all units below it, is normally of one specialty; for example, infantry, armour, artillery or logistics battalions.</p>
<p>Battalion group</p>	<p>A battalion group is a (for example, infantry) battalion that has been reinforced with engineer, logistic, medical, and signal capabilities so that it is able to operate for an extended period of time independently... Some operations may also require an artillery capability.</p>

* Source: Ministry of Defence, *New Zealand Defence Force Capability Reviews, Phase One - Land Forces and Sealift*, November 2000.

1.23 The Army has 2 standing infantry battalions:

- 1st Battalion, Royal New Zealand Infantry Regiment - 1 RNZIR, based with the Second Land Force Group at Linton.
- 2nd Battalion, Royal New Zealand Infantry Regiment - 2/1 RNZIR, based with the Third Land Force Group at Burnham.

The military capability systems life cycle

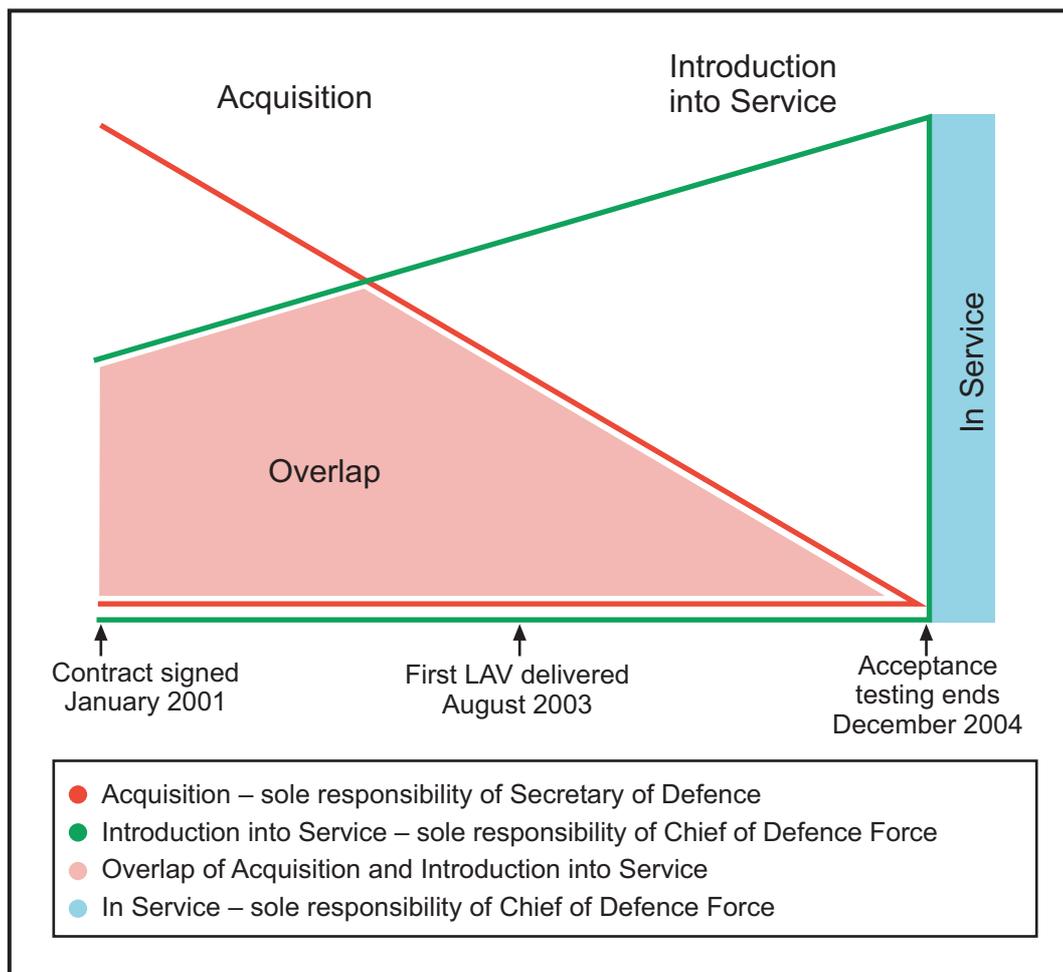
1.24 The military capability systems life cycle has 5 distinct phases that cover planning for the purchase, acquisition, use, and disposal of military equipment. The 5 phases are shown in Figure 4 below. Our first report focussed on the assessment and definition phase, and the acquisition part of the delivery phase of the LAV project. This report looks at the acquisition and introduction-into-service parts of the delivery phase.

Figure 4
Five phases of the military capability systems life cycle



1.25 The Secretary of Defence and the Chief of Defence Force are separately accountable for acquisition and introduction into service respectively. Both parts occur simultaneously. The overlap between these 2 parts of the delivery phase since the LAV contract was signed in January 2001 is shown in Figure 5 below. Acquisition activity tapers off as introduction-into-service activity increases.

Figure 5
*Overlap of acquisition and introduction-into-service activities for the Light Armoured Vehicle project**



* Adapted from *Capability Management Framework*, New Zealand Defence Force, May 2004.

Objectives of our follow-up audit

1.26 Our first report about acquisition of the LAVs highlighted problems in the key areas of governance, relationships, accountabilities, and defence planning.

1.27 We intended to undertake a follow-up audit on the accuracy of the Army's analysis of the maintenance requirements for the LAVs. However, it became apparent at an early stage that our audit required a wider scope. We therefore

not only looked to see if progress had been made since our first report, but also examined issues arising from the introduction into service of the LAVs.

- 1.28 The objectives of our follow-up audit were to:
- give assurance to Parliament about whether the Defence agencies' governance arrangements for the LAV project are appropriate and robust;
 - identify shortfalls, if any, between the approved costs and actual costs for the LAVs; and
 - assess the analysis that has been undertaken to identify the costs of operating and maintaining the LAVs in accordance with the purchase agreement.
- 1.29 In order to meet these objectives, we:
- interviewed staff from the Defence agencies;
 - reviewed documents and files held by the Defence agencies relating to the introduction into service of the LAVs; and
 - visited the Army Training Group at Waiouru to observe acceptance testing and driver training for the LAVs.

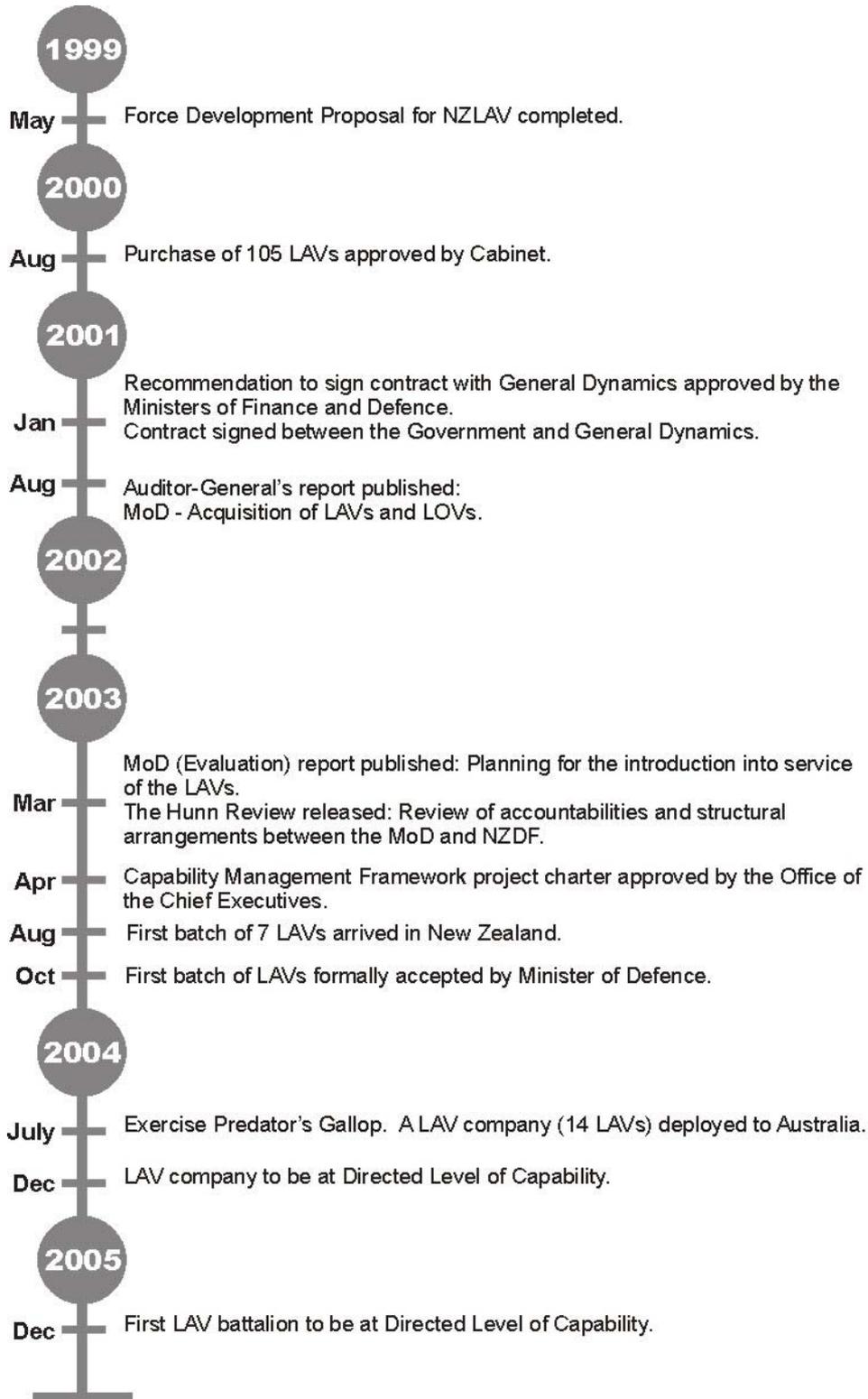
Structure of this report

- 1.30 During our follow-up audit, we noted that the August 2000 Cabinet paper did not set targets for the introduction into service of the LAVs. We also became aware that the Army did not intend to operate the LAVs in the way envisaged in that Cabinet paper. We set out our findings on the current targets and plans for the introduction into service of the LAVs in Part 2.
- 1.31 In Part 3 we discuss the recommendations to improve governance arrangements that were made in our first report and by the MoD's Evaluation Division, subsequent changes to governance, and the effectiveness of LAV project governance in relation to those recommendations.
- 1.32 Part 4 identifies the shortfalls in funding for spare parts and the Logistic Support Agreement for the LAVs. We examine how the shortfalls have been addressed by the Defence agencies. We also discuss the lack of funding for a moving target range for LAV training.
- 1.33 Part 5 discusses the Defence agencies' use of life cycle costing analysis to identify ongoing funding requirements of the LAV project. We discuss how life cycle costing analysis has been introduced throughout the Defence agencies.

Key events

- 1.34 Figure 6 on the opposite page shows the key events for the LAV project, including the expected timing of events still to take place.

Figure 6
Timeline of key events for the Light Armoured Vehicle project since 1999, and future goals



Part 2 – Acquisition and introduction into service

Background

- 2.1 Our first report in August 2001 set out the background to the purchase of the LAVs, giving details of the initial Cabinet approvals in March 1998 and May 1999; the tender process that was undertaken in late-1999, and discussions between General Dynamics and MoD (Acquisition) that took place in early-2000.
- 2.2 In August 2000, the Minister presented a paper to the Cabinet Policy Committee that set out options for the purchase of LAVs. It contained 4 options:
- to purchase 55 vehicles – to be delivered over a 3-year period, with an option of purchasing a further 50 vehicles later;
 - to purchase 75 vehicles – to be delivered over a 3 to 4-year period, with an option of purchasing a further 30 vehicles later;
 - to purchase 105 vehicles to be delivered over a 5-year period; or
 - to redefine the requirements of the project.
- 2.3 In particular, the August 2000 Cabinet paper stated that the purchase of 105 LAVs delivered over a 5-year period would –

... provide commonality of equipment across both battalions. This would:

- (1) Provide a deployable and sustainable battalion group, consisting of three motorised rifle companies, able to meet intended policy outcomes, and which is seen as both credible and usable by our defence partners.*
- (2) Enable the reinforcement to the battalion group to arrive in the unit with a high level of skills in motorised operations, both during mobilisation in NZ and once the force is deployed.*
- (3) Enable the battalion group commitment to be sustained by rotating the complete battalion at the time of change.*

- 2.4 This established the rationale for the option of acquiring 105 LAVs with delivery over a 5-year period. The acquisition of 105 LAVs would enable the Army to deploy⁸ and sustain⁹ a motorised battalion group of 51 LAVs¹⁰, and a deployed battalion group could be fully replaced by an identical new battalion group, if and when required¹¹.

Cabinet authority for the purchase of 105 Light Armoured Vehicles

- 2.5 At a meeting on 21 August 2000, after reference from the Cabinet Policy Committee, Cabinet approved in principle the purchase of 105 LAVs for delivery over a 5-year period at a cost not to exceed \$611.764 million (GST-inclusive).
- 2.6 An approval in principle is a decision that authorises further investigation with a view to specific action being taken at a later date. Accordingly, Cabinet invited the Minister to submit to the Cabinet Policy Committee detailed proposals for the project implementation covering funding and timing.
- 2.7 The Minister submitted the requested information to the Cabinet Policy Committee on 15 September 2000. This paper provided an estimated cost of the LAV project and included a breakdown of the total costs. It set out the expected payment schedules and detailed the necessary changes to appropriations.
- 2.8 However, the Minister was not asked for, nor did his paper provide, any estimate of when or how the Army would deliver the capability outlined in paragraph 2.3.
- 2.9 On 18 September 2000, Cabinet authorised the Cabinet Policy Committee to have Power to Act at its meeting on 20 September 2000, to consider proposals for the purchase of the LAVs.
- 2.10 On 20 September 2000, the Cabinet Policy Committee approved the expenditure of \$646.018 million (GST-inclusive)¹², estimated in the Minister's paper for the purchase of 105 LAVs.

⁸ Deployability is the ability of a force to be safely transported within a specific timetable to a theatre of operations.

⁹ Sustainability is the ability to support a force through the duration of an operation. It includes, for example, sufficient personnel for initial deployment, rotation and casualties, and logistic stocks required by the deployed forces.

¹⁰ An annex to the August 2000 paper to the Cabinet Policy Committee describes a motorised battalion group as consisting of 51 LAVs.

¹¹ The August 2000 paper to the Cabinet Policy Committee states that the Army is required to be able to deploy, at 60 days' notice, a battalion group to participate in conventional mid-level conflict or in a range of UN and peace support operations. A second battalion is required to deploy at 6 months' notice.

¹² The increase in the cost of the LAVs between 21 August (see paragraph 2.5) and 20 September 2000 was a result of exchange rate fluctuations.

*Figure 7
Timeline of Cabinet authority to purchase Light Armoured Vehicles*

2000	
14 August	<p>The Minister of Defence submitted a paper to the Cabinet Policy Committee.</p> <p>The paper included an option to purchase 105 LAVs, with delivery over 5 years, at a cost of \$611.764 million.</p>
21 August	<p>After reference from the Cabinet Policy Committee, Cabinet approved in principle the purchase of 105 LAVs, with delivery over 5 years, at a cost of \$611.764 million.</p> <p>Cabinet invited the Minister of Defence to submit a paper to the Cabinet Policy Committee with detailed proposals for project implementation covering funding and timing.</p>
15 September	<p>The Minister of Defence's subsequent paper, noting the estimated cost of 105 LAVs as being \$646.018 million, was circulated to the Cabinet Policy Committee.</p>
18 September	<p>Cabinet authorised the Cabinet Policy Committee with Power to Act to consider proposals for the purchase of the LAVs.</p>
20 September	<p>The Minister of Defence's paper was approved by the Cabinet Policy Committee.</p> <p>The Cabinet Policy Committee delegated authority to the Secretary of Defence to enter contract negotiations for the supply of 105 LAVs.</p> <p>The Cabinet Policy Committee directed the Ministry of Defence to prepare a report including a final assessment of project costs to the Ministers (of Finance and Defence).</p> <p>The Cabinet Policy Committee also delegated authority to the Ministers of Finance and Defence to approve any changes in appropriations required as a result of the MoD's final report.</p>
2001	
25-27 January	<p>The Secretary of Defence and the Chief of Defence Force submitted a paper entitled "Light Armoured Vehicles" to the Ministers of Finance and Defence.</p> <p>The paper included a final assessment of project costs for 105 LAVs at \$652.833 million.</p> <p>The Minister of Defence approved the recommendations of this paper on 25 January, and the Minister of Finance approved them on 27 January.</p>
29 January	<p>The Government signed a contract with General Dynamics for the purchase of 105 LAVs.</p>

- 2.11 The Committee delegated authority to the Secretary of Defence to enter into contract negotiations for the purchase of the LAVs, and the MoD was directed to report the final assessment of the project costs¹³ to the Ministers (of Finance and Defence) before the contract was signed. The Committee also delegated authority to the Ministers to approve any changes in appropriations required as a result of the MoD's final report.
- 2.12 In January 2001, the Secretary of Defence and the Chief of Defence Force presented this report to the Ministers, and recommended that a contract be signed for the supply of 105 LAVs at a cost of \$652.833 million (GST-inclusive). The report did not provide any estimate of when or how the Army would deliver the capability outlined in paragraph 2.3.
- 2.13 The Ministers approved the recommendations of the report, and the Government signed a contract on 29 January 2001 with General Dynamics to purchase 105 LAVs.

Defence policy changes after Cabinet approval in August 2000

- 2.14 The Defence agencies told us that Government policy had changed subsequent to the August 2000 Cabinet decision and the signing of the contract with General Dynamics in January 2001.
- 2.15 The Secretary of Defence and the Chief of Defence Force consider that, as a result of this policy change, the Army is now not required to be able to operate a complete motorised infantry battalion in the manner that had been set out in the August 2000 Cabinet paper (as described in paragraph 2.3 on page 18). We were told that the Army is required to meet the *Government Defence Statement* dated 8 May 2001. Two previous statements had been released since the LAV project began.
- 2.16 The first of these policy statements was *The Government's Defence Policy Framework*, released in June 2000, which sets out the Government's defence policy objectives, and the roles and tasks of the NZDF. The framework signalled further reviews in a range of areas.¹⁴
- 2.17 The second relevant statement was the *New Zealand Defence Force Capability Reviews – Phase One – Land Forces and Sealift* review, dated November 2000.

¹³ The report was also to include an appropriate foreign exchange hedging policy, a detailed risk analysis and risk management plan, how the contract price differed from the original cost, analysis of potential future cost variation, a breakdown of New Zealand project costs, an appropriate monitoring and reporting regime, and any required changes to appropriations.

¹⁴ The NZDF *2004/2005 Output Plan* shows how the NZDF intends to contribute to the achievement of the Government's Defence Policy Framework 2000 (a document that sets out the Government's approach to defence) and the subsequent Government statements, such as that of 8 May 2001, that provide added detail on defence policy.

The review found that, with its current structure, the Army had the ability to deploy and sustain a battalion group of 600-900 personnel for up to 1 year. It could provide a larger force (900-1200 personnel) for 6 months. The review identified options for increasing the size of the Army and its ability to sustain larger forces on deployment for longer periods.

- 2.18 With the *Government Defence Statement* dated 8 May 2001, the options chosen as a result of the earlier reviews were expressed as Government policy. In relation to the Army, the 8 May 2001 Statement noted that the Army's current structure would continue –

... based on two light infantry battalions within a brigade framework. These two battalions provide a capacity to sustain a 600-900 person commitment for a year and a 900-1,200 size battalion for six months. These levels can be enhanced by the deployment of Territorials when and where necessary.

- 2.19 The statement did not stipulate the number of LAVs that would make up a motorised infantry battalion group or company.

Current requirements and plans for the Army's use of Light Armoured Vehicles

- 2.20 Given that the Defence agencies consider that the Army is now no longer required to be able to operate the LAVs in the manner suggested in the August 2000 Cabinet paper, we tried to identify exactly what the current requirements are for the Army's use of the LAVs, and how the Army plans to meet these requirements.

Output plan requirements

- 2.21 The NZDF 2004/2005 *Output Plan* identifies the land combat force options that the Army must provide to the Government in relation to the LAVs. The *Output Plan* refers to:
- an *Infantry Company Group* – consisting of an Infantry Company (motorised or non-motorised) and supporting elements; and
 - an *Infantry Battalion Group* – consisting of an Infantry Battalion (motorised or non-motorised) and Reconnaissance Troop.
- 2.22 The *Output Plan* states 2 current targets for the introduction into service of the LAVs. These are to have:
- a motorised company group to be at the directed level of capability by December 2004; and
 - a motorised battalion group to be at the directed level of capability by December 2005.

The Army's plans for Light Armoured Vehicle distribution

- 2.23 As of 28 June 2004, the Army planned to distribute the LAVs as follows:
- 12 LAVs in Waiouru for ongoing LAV crew¹⁵ training;
 - 49 LAVs with the motorised 1st Battalion in Linton;
 - 14 LAVs based in Linton alongside the 1st Battalion in support roles; and
 - 30 LAVs with Queen Alexandra's Squadron¹⁶, to be based in Burnham alongside the 2nd Battalion.
- 2.24 In effect, 93 LAVs will be available for operational deployments, while 12 will be dedicated to ongoing training.
- 2.25 The Army told us that the 28 June 2004 plan was the result of 18 months of development work, and that the current intended distribution of the LAVs is designed to offer the Government the greatest flexibility in terms of options for LAV use.
- 2.26 The Army also told us that, in the event that the Government directs the deployment of Army units, the number of LAVs deployed as part of a battalion would be dependent upon an assessment of threat, terrain and task. As long as 600-900 personnel were deployed for 12 months, or 900-1200 personnel for 6 months, the Army could meet the requirements of the 8 May 2001 Statement. This deployment might involve: many LAVs, a small attachment of LAVs, or no LAVs at all.

The Army's plans for training Light Armoured Vehicle crews

- 2.27 In a letter to us, dated 6 August 2004, the Secretary of Defence and the Chief of Defence Force stated that 80 trained LAV crews is the requisite number to meet the targets required by the 8 May 2001 Statement.
- 2.28 By October 2004, the Army had 16 trained LAV crews. These crews had taken part in Exercise Predator's Gallop in Australia in July 2004, and were to form the basis of the motorised company group due to be at the directed level of capability by December 2004.
- 2.29 The Army's schedule for training more LAV crews is to have:
- 32 trained crews by the end of 2004;
 - 64 trained crews by December 2005; and,
 - between 80 and 96 trained crews by December 2006.

¹⁵ A LAV crew comprises a driver, a gunner, and a commander.

¹⁶ The Army's Armoured Reconnaissance Squadron. This unit previously operated the Army's M113 Armoured Personnel Carriers. The LAV remaining in Canada (see paragraph 1.20 on page 13) will be assigned to this unit when it arrives in New Zealand.

- 2.30 The Army told us that this plan would provide trained crews for the 93 operational LAVs. Instructors and students will operate the remaining LAVs issued to training units. The Army considers that it has the ability to increase training throughput in 2005 and 2006 if required.
- 2.31 Achievement of these training targets is not without risk. For example, the Army has worked for some time against the background of a general shortage of personnel and a high attrition rate¹⁷, and a range of initiatives has been undertaken in response to this risk¹⁸.
- 2.32 We were told that, in order to meet the introduction-into-service targets, the Army's priority is to fill the personnel requirements for the LAV project. Consequently, the personnel requirements of some non-LAV units will not be filled in the short-term. The implications of this include:
- temporary closure of one infantry company in the 2nd Battalion;¹⁹ and
 - maintaining Queen Alexandra's Squadron reconnaissance skills at the minimum level.
- 2.33 We were told that the NZDF and the Army have consistently informed the Minister of Defence that the LAV project remains on track to meet its December 2004 and December 2005 milestones (as stated in paragraph 2.22).

Achievement of the Army's targets and plans

- 2.34 Neither the 8 May 2001 Statement, nor the NZDF *2004/2005 Output Plan*, stipulate the number of LAVs and LAV crews in either a motorised company group or a motorised battalion group.
- 2.35 We expect that, subject to meeting its training targets, the Army will be able to meet its obligations under the *Output Plan* as it will have:
- 49 LAVs based with the 1st Battalion in Linton, with 14 additional LAVs in support roles, plus 32 trained LAV crews, by December 2004; and
 - up to 64 trained LAV crews (as stated in paragraph 2.29) with which to make up a motorised battalion group, by December 2005.
- 2.36 Although the Defence agencies consider that there is no policy requirement to maintain 2 battalions of 51 LAVs, the Army told us that it would be able to

¹⁷ The attrition rate for the Army has remained steady during the last 2 years at between 16.5% and 17.5%.

¹⁸ Initiatives include (in co-operation with the NZDF) establishing a working group to identify how to improve retention rates and recruitment, using the NZDF's capacity planning model to help analyse capability needs, completing a Personnel Shortfall Study, liaising closely with strategic human resource, recruitment, and training organisations, and undertaking the Defence Capability and Resourcing Review – a Defence-wide exercise that seeks to identify the current and optimum capability configuration and resource requirements for the Defence agencies to undertake the roles and tasks prescribed by the Government (due to report by the end of 2004).

¹⁹ New recruits that would otherwise go to this company will be diverted into LAV crew training.

provide a motorised battalion group deployment consisting of 51 LAVs if required by the Government.

- 2.37 However, the Army is unable to sustain such a deployment for longer than 6 months, without some LAV crews being deployed for longer than the 6-month “Tour Length” planning figure noted in Schedule 4 of the NZDF *2004/2005 Output Plan*. This is not consistent with “rotating the complete battalion at the time of change”, which was the rationale set out in the August 2000 Cabinet paper for purchasing 105 LAVs for delivery over a 5-year period.
- 2.38 Deploying personnel for longer periods could have an adverse affect on the morale of personnel on deployment, and also on the Army’s overall attrition rate. Another possibility is that fewer LAVs are deployed, in order to allow LAV crews to be rotated in line with the 6-month “Tour Length” planning figure.

Our overall conclusions

- 2.39 The LAVs have been delivered on budget and on time, and acceptance testing is due to be completed in December 2004. The Army has put a great deal of effort into preparing a distribution plan to make the most effective use of the LAVs, given the time needed to train crews and a general shortage of personnel.
- 2.40 The Defence agencies consider that the Army’s 28 June 2004 distribution plan for the LAVs represents a flexible approach to configuring the LAVs in a way to best meet the Government’s required outputs and expectations. The distribution plan states that this approach is “a refinement of and not a major variation from” the original rationale for 105 LAVs.
- 2.41 We have no reason to doubt that the Army’s distribution plan is appropriate in the context of the 8 May 2001 Statement. However, this approach clearly means, in our view, that the LAVs will be used in a different way to that set out in the August 2000 Cabinet paper.
- 2.42 We would have expected such a change in approach to be communicated to Cabinet, consistent with Cabinet having made the original decision in principle to purchase the 105 LAVs. We saw no evidence that this happened.
- 2.43 In addition, we note that, less than 4 months after the LAV contract was signed (29 January 2001), the 8 May 2001 Statement was released. We would have expected Cabinet to be advised, during preparation of the 8 May 2001 Statement, of the implications of the statement on the intended use of the LAVs. Again, we saw no evidence of this.
- 2.44 We understand from our communications with the Secretary of Defence and the Chief of Defence Force that the Minister is kept well informed of how the LAV project is progressing against targets, and that the Minister is satisfied with the Defence agencies’ current plans for the LAVs.

- 2.45 The Army's current plan for using the LAVs is, in our view, significantly different from that which formed the rationale for purchasing 105 LAVs. That rationale envisaged a configuration that would have required 105 LAVs.
- 2.46 We tried to establish whether, under the current distribution plan, 105 LAVs were needed to meet the 8 May 2001 Statement and the *2004/2005 Output Plan* obligations. It was not possible for us to do this because:
- the Army proposes to adopt a flexible approach to the way it uses and configures the LAVs; and,
 - the concept of a battalion size is variable, and therefore the Army could meet its obligations by having a smaller or larger sized battalion depending on an assessment of threat, terrain, and task.
- 2.47 However, in our view, it could be possible for the Army to deliver its obligations under the 8 May 2001 Statement and the *2004/2005 Output Plan* with fewer than 105 LAVs. This is because of the flexibility provided to the Army in these documents.

Lessons learned

Papers seeking Cabinet "approval in principle"

- 2.48 Recommendations seeking Cabinet "approval in principle" are discussed in paragraph 4.37 of the *Cabinet Office Manual* of 1996, which was in force at the relevant time –

Recommendations seeking approval in principle should be made sparingly and must state the intended source of authority for future action, ie, that the matter will be referred back to Cabinet, a Cabinet committee, or a Minister. Submissions should not seek approval in principle to the whole of a major policy issue when further investigation or discussion is needed before the government should consider entering into a substantive commitment. In such cases, a Minister should seek approval for the specific action to be taken at that time (for example, to begin certain negotiations) and, if necessary, for Cabinet or a Cabinet committee to note that further action will need to be taken later.

- 2.49 We consider that both of the Minister's Cabinet papers – the August 2000 paper and the paper dated 12 September 2000 – met the requirements of the *Cabinet Office Manual* because they sought approval for a specific course of action, and advised that implementation and funding proposals for the LAV project would be forthcoming.
- 2.50 The August 2000 paper to the Cabinet Policy Committee noted that further detailed proposals would be submitted to the Committee on the option for the purchase of LAVs selected by the Committee (to purchase 105 LAVs over a 5-year period – described at paragraph 2.3 on page 18). Similarly, the September

2000 paper to the Cabinet Policy Committee dealt with the funding and timing issues as requested by Cabinet on 21 August 2000.

- 2.51 However, in our view, the August 2000 paper to the Cabinet Policy Committee should have included an indication of how and when the Army would be able to deploy and sustain a motorised battalion group (as outlined in paragraph 2.3). The inclusion of such an indication would, at a minimum, have required the Army to make an assessment of:
- its ability to train the LAV crews required;
 - the timetable for training sufficient LAV crews;
 - future personnel levels; and,
 - an HR strategy with respect to the LAVs.
- 2.52 The paper did not include any such assessment.
- 2.53 Officials from the Defence agencies should also have ensured that these issues were included in the Minister's September 2000 paper to the Cabinet Policy Committee. These issues were not addressed in that paper.
- 2.54 Our view that the August 2000 Cabinet paper was not sufficiently robust is further supported by our findings detailed in Part 4 of this report; that funding for items important to the LAV project²⁰ was either not incorporated, or was under-estimated in the project budget.
- 2.55 There is a vital lesson for the wider public sector flowing from these findings. It is that proposals for capital purchasing need to identify and assess the full range of financial and capability implications of the proposed purchase.
- 2.56 In addition, should plans to use a major new capital asset differ from the rationale for the purchase agreed to by Cabinet, then the agency involved should report this change back to Cabinet for explanation and approval.
- 2.57 Since our first report, the Secretary of Defence and the Chief of Defence Force have put in place a Capability Management Framework that is designed to ensure that proposals for defence acquisitions are fully robust and realistic (discussed, in the context of governance, in Part 3 of this report). We have not audited any proposals prepared under this new framework, but we will pay specific attention to this area in any future audits of defence acquisitions.

²⁰ Such as funding for spare parts, a Logistic Support Agreement, and a moving target range.

Recommendations

Recommendation 1

We recommend that the full effect of the personnel shortage in relation to the Light Armoured Vehicle project be assessed. This should include implications for LAV project goals, and for non-LAV units. The assessment information should be periodically updated and reported to the Executive Capability Board.

Recommendation 2

We recommend that early and full consideration be given to all financial implications of proposed military capability acquisitions. These implications need to be factored into proposals and supporting documents seeking Cabinet approval.

Recommendation 3

We recommend that thorough capability planning be undertaken, under the Capability Management Framework, to identify all of the personnel implications associated with the acquisition of a new military capability. The personnel implications should be based on robust and realistic assessments, and be clearly expressed in proposals and supporting documents seeking Cabinet approval for an acquisition.

Recommendation 4

We recommend that, when the planned use of a new military capability changes from what was approved by Cabinet, the reasons for, and the nature of the changes, are clearly documented and returned to Cabinet for approval.

Part 3 – Governance

Introduction

3.1 In this Part we discuss:

- recommendations to improve governance;
- subsequent changes to governance arrangements;
- governance of the LAV project during the introduction of the new governance arrangements; and
- the effectiveness of the new governance arrangements.

Previous recommendations to improve governance

Recommendations in our first report

3.2 Our first report raised concerns about the governance arrangements for the LAV project. We reported that:

- there was a lack of strategic management of the project, and noted that there was no overarching trilateral governance structure above the MoD project team;²¹ and
- the Defence Planning System – which was intended to ensure a co-ordinated approach to the planning of defence capability – was ineffective.

3.3 We made a number of recommendations that were intended to improve the governance and strategic management of projects such as the LAV project.

3.4 For example, we recommended²² that projects the size of the LAV project should be governed by a steering committee – chaired by the Secretary of Defence, and including senior staff from the MoD, the NZDF, and the single armed services. Such a committee should –

...meet at regular intervals, keep detailed minutes, and receive reports on the state of the project from the Project Director. It should also receive independent reports on the status and progress of projects.

²¹ Report of the Controller and Auditor-General, *Ministry of Defence: Acquisition of Light Armoured Vehicles and Light Operational Vehicles*, August 2001, ISBN 0-477-02883-7, page 44. A full copy of our first report is available on our website www.oag.govt.nz.

²² *ibid*, page 58.

- 3.5 We also recommended that the Defence Planning System be independently reviewed in order to determine whether it is ever likely to operate effectively, or whether it should be replaced.

Recommendations by the Ministry of Defence's Evaluation Division

- 3.6 In addition to our findings and recommendations about improving governance, a March 2003 report by the MoD's Evaluation Division – MoD (Evaluation)²³ – examined the planning for the LAVs' introduction into service.

- 3.7 The report found that the governance structure over the LAV project was not appropriate for a project of its size and complexity, as the governance covered only the capability development and acquisition parts of the project.

- 3.8 Specifically, the MoD (Evaluation) report stated that (with our emphasis in bold type) –

*Governance of a project of the size and importance of the NZLAV should be undertaken **jointly** by the Secretary of Defence, Chief of Defence Force and Chief of General Staff **continuously** until the responsibilities of the Ministry cease at the end of the post-delivery warranty period.*

and ...

Introduction into service of a major capability or asset requires close collaboration between the Ministry's acquisition organisation and the receiving Service. Significant information flows and coordination activities are involved. We also think that introduction of a major asset or capability into service has implications for HQ NZDF Development and Resources Branches. We do not think it is appropriate to regard the introduction into service phase of a major new capability as something to be overseen entirely by the Service concerned [the Army].

- 3.9 The MoD (Evaluation) report also stated that –

*Responsible managers, whether the Deputy Secretary Policy and Planning, Deputy Secretary Acquisition, or Deputy Chief of Staff of the Service concerned, should account for their phase of the project to a **single Governance Board**. Chairmanship of the Governance Board might move from the Secretary of Defence to the Chief of Defence Force as the project moves towards delivery and introduction into service.*

- 3.10 MoD (Evaluation) recommended that the MoD and the NZDF extend the governance arrangements for the LAV project, and similar projects, to include oversight of introduction-into-service planning and preparations.

²³ MoD (Evaluation) carries out assessments and audits under the authority of section 24(2)(e) of the Defence Act 1990.

- 3.11 The Secretary of Defence and the Chief of Defence Force both endorsed this recommendation. The Chief of Defence Force noted that the issue of project governance would be addressed through the development of a “whole of project” approach to governance, known as the “Capability Management Framework”.

Our expectations for improvements to Light Armoured Vehicle project governance

- 3.12 We expected that the Defence agencies would have given effect to the recommendations of our first report, and to the recommendations of the MoD (Evaluation) report. We expected that joint governance structures would have been introduced over the LAV project, and that we would be able to see evidence that the Secretary of Defence and the Chief of Defence Force had been providing joint governance over the LAV project through these structures.

Changes to governance arrangements

- 3.13 The Defence agencies have undertaken a range of positive actions in response to the recommendations raised in our first report in 2001. Since then, there has been an evolution in oversight arrangements for the LAV project and military capability acquisition projects in general.
- 3.14 Changes have included the introduction of:
- the Acquisition Control Group (Army); and
 - the Capability Management Framework.

Introduction of the Acquisition Control Group (Army)

- 3.15 The Secretary of Defence convened the Acquisition Control Group (Army) in November 2001, and chaired the meetings of the Group. The Chief of Defence Force and the Chief of Army were members of the Group.
- 3.16 In discussing the LAV project between November 2001 and November 2002, the Acquisition Control Group (Army) largely met the recommendations of our first report. Minutes of the Group’s meetings show that regular progress reports were received from the LAV project team. Risks and project issues – and actions to address them – were discussed in detail. The Deputy Secretary of Defence (Evaluation) and a risk management consultant provided the Group with an independent assessment of the LAV project.
- 3.17 The Acquisition Control Group (Army) last met in November 2002.

Introduction of the Capability Management Framework

- 3.18 In our first report we recommended that the Defence Planning System be reviewed to determine whether it is ever likely to be effective or whether it should be replaced.
- 3.19 In April 2003, the Office of the Chief Executives²⁴ approved a project charter to set up a framework that would address the problems identified with the Defence Planning System. A significant amount of effort went into establishing this framework, and the Defence agencies consulted with the wider public sector during its development. The resulting Capability Management Framework was approved on 22 April 2004.
- 3.20 During the development of the Capability Management Framework, draft elements of the framework were progressively introduced and tested. While this approach assisted the development of the Capability Management Framework, we consider that it also caused some confusion about the role and status of the framework in relation to the LAV project.
- 3.21 The Capability Management Framework replaced the Acquisition Control Group (Army) with 2 new bodies:
- the Executive Governance Board (now called the Executive Capability Board); and
 - the Capability Development Management Committee (now called the Integrated Capability Management Committee).²⁵
- 3.22 The Executive Capability Board has 2 permanent members – the Secretary of Defence, and the Chief of Defence Force. The Integrated Capability Management Committee mirrors the Executive Capability Board’s membership with second-tier personnel from the Defence agencies.
- 3.23 We were told that the Executive Capability Board has no executive powers. It is a forum for the Secretary of Defence and the Chief of Defence Force to share information and discuss matters of mutual interest. It does not remove the individual responsibilities of the Chief Executives in relation to the Minister of Defence.
- 3.24 The Integrated Capability Management Committee first met in April 2003 and the Executive Capability Board first met in May 2003. Given that the Capability Management Framework was not officially approved until 22 April 2004, the early establishment of these groups are examples of the progressive introduction of elements of the Capability Management Framework.

²⁴ The Office of the Chief Executives exists to provide co-ordination between the Secretary of Defence and the Chief of Defence Force, and their 2 organisations, in respect of their joint responsibilities.

²⁵ During our audit, the Board and the Management Committee were re-named. To avoid confusion, we use the current titles.

Governance of the Light Armoured Vehicle project during the introduction of the Executive Capability Board

- 3.25 In our audit, we focussed on how the revised governance arrangements contributed to enhanced oversight over the LAV project. In particular, we looked at:
- governance over the LAV project during the introduction of the Executive Capability Board; and
 - the effectiveness of current governance arrangements.
- 3.26 We were interested to assess the effectiveness of governance arrangements during the period when the Capability Management Framework was being introduced.
- 3.27 We reviewed the minutes of meetings of the Acquisition Control Group (Army) and the Executive Capability Board and found that, from the time the Acquisition Control Group (Army) last met in November 2002, there was no record of discussion of the LAV project until the Executive Capability Board meeting of October 2003 – a period of 11 months.
- 3.28 This was of concern to us, given that the March 2003 MoD (Evaluation) report recommended that governance arrangements be extended over this phase of the LAV project, and given that the Chief of Defence Force's response to the recommendation was that the Capability Management Framework would be used to achieve this.
- 3.29 We raised our concerns with the Secretary of Defence and the Chief of Defence Force and were told that:
- Between November 2002 and October 2003 there were no relevant issues for either the Acquisition Control Group (Army) or the Executive Capability Board to discuss, and that, had relevant issues arisen, the appropriate group would have discussed those issues.
 - The Secretary of Defence and the Chief of Defence Force had oversight of all key LAV project issues through the internal reporting processes of each agency. Each Chief Executive had appropriate knowledge of all matters for which they were individually accountable.
 - Responsibilities have been delegated to the appropriate levels. The acquisition of the LAVs is entirely the responsibility of the Secretary of Defence. Introduction into service of the LAVs is the sole responsibility of the Chief of Defence Force, who has delegated the responsibility for managing this activity to the Chief of Army.
- 3.30 While the Secretary of Defence and the Chief of Defence Force may have received reports through the internal processes of each agency, our first report and the report of MoD (Evaluation) both clearly state that projects such as the LAV project require a joint governance structure to oversee the project as a

whole. Neither our first report, nor the MoD (Evaluation) report, suggested that governance meetings be held only when “relevant issues” arise.

- 3.31 In line with the recommendations of both reports, we consider that the following actions should have been taken during 2003 to ensure robust joint governance over the LAV project:
- The LAV project should have been a standing agenda item for review at the monthly meetings of the Executive Capability Board;
 - The Executive Capability Board should have periodically monitored the main risks to the LAV project, as listed in the respective Army and MoD Risk Registers; and
 - Some of the risks listed in the LAV project Risk Registers were relevant for discussion at the Executive Capability Board in their own right. The Board should have discussed these risks, as they had potential implications for achieving introduction-into-service targets.
- 3.32 Examples of risks with implications for achieving LAV project targets include the shortfall in funding for LAV spare parts (discussed in more detail in Part 4 of this report), and the risk that there would be insufficient personnel to fill future LAV-related vacancies (see paragraph 2.31 on page 24).²⁶
- 3.33 We are concerned that the risks of shortfalls in personnel and funding for spare parts – identified as high risks to the overall project by both the MoD and Army Risk Registers – were not raised for notification or discussion at the Executive Capability Board.
- 3.34 In addition, although the Secretary of Defence does not hold the legal authority to direct the NZDF to allocate further funding for spare parts, we consider that an aspect of the spare parts funding resolution did in fact relate to the statutory responsibilities of the Secretary of Defence. This was because negotiations between General Dynamics and MoD (Acquisition) about weight compensation were ongoing, and any compensation agreed was to be applied to LAV spare parts (see Part 4).

²⁶ Other active risks of high severity noted in the MoD and Army Risk Registers that might have been discussed included:

- the technical capability of Army personnel;
- cost of ownership of the LAVs;
- increase in weight;
- delays to acceptance testing;
- having sufficient fleet management data;
- securing prime contractor support;
- implications of guarantees and warranties; and
- cost of special tools and test equipment.

Effectiveness of governance arrangements

- 3.35 We were also interested to assess current governance arrangements, now that the Capability Management Framework has been fully introduced.
- 3.36 Generally, governance, sharing of information, and co-operation have improved since our first report. The Capability Management Framework is an attempt to provide a joint governance and management framework (as recommended by our first report and the MoD (Evaluation) report), while recognising the separate statutory accountabilities of the Chief Executives.
- 3.37 The Defence agencies have also taken steps to ensure the sharing of information about the LAV project within the Defence agencies, even though this information at times related to the “sole” responsibilities of a single agency. Personnel involved in the wider project have issued regular reports to senior levels, and often copied these reports to the Chief Executives of the MoD and the NZDF.
- 3.38 However, we found differing views between the Army and the NZDF about the process by which the LAV project would be held to account.
- 3.39 We understand that the Army expected that it would be called to account for the introduction-into-service part of the LAV project, and would be asked to explain key issues. However, senior NZDF officials stated that they expected the Army to raise issues when guidance was required.
- 3.40 Good project governance arrangements should allow for issues to be raised both by those responsible for managing projects (in the case of the LAVs’ introduction into service, the Army) and by those with overall responsibility for the final outcome of the project (the Secretary of Defence for acquisition, and the Chief of Defence Force for introduction into service). Governance is therefore a 2-way process, with ultimate responsibility resting with the Secretary of Defence and the Chief of Defence Force.
- 3.41 Matters of “sole” responsibility have not been raised at meetings of the Executive Capability Board. This is because the Board cannot over-ride the statutory decision-making authority of the Chief Executives on such matters. We consider that joint oversight of major acquisition projects would be improved if matters of sole responsibility were raised for discussion at Executive Capability Board meetings. Until this happens, there is a risk that issues critical to the statutory responsibilities of each Chief Executive may not be addressed in a timely way.
- 3.42 In our view, the Capability Management Framework could be amended to require that all major issues and risks related to acquisition or introduction into service of major new capabilities are, in the first instance, elevated to the Executive Capability Board for notification, discussion, and support. This would provide improved joint oversight without diluting or altering individual statutory responsibilities of the Chief Executives to the Minister.

3.43 We are pleased to note that the Defence agencies have now made projects such as the LAV project standing items for the agendas of the Executive Capability Board and the Integrated Capability Management Committee, and that regular meetings have been held to review project risks.

3.44 We also note that a Directorate of Capability Programme Support has been established to manage the setting of agendas for governance meetings under the Capability Management Framework, and to ensure that supporting papers are provided to these meetings. We expect the Directorate to improve the flow of information within the Capability Management Framework, and to improve the effectiveness of the Integrated Capability Management Committee and the Executive Capability Board.

Recommendation

Recommendation 5

We recommend that the Capability Management Framework be amended to ensure that all the important issues relating to military capability acquisition projects are brought to the Executive Capability Board for discussion. This should happen even for issues that are the sole responsibility of one of the Chief Executives.

Part 4 – Funding shortfalls

Introduction

- 4.1 In this Part we identify shortfalls in funding for 3 important aspects of the LAV project. These include:
- spare parts for the LAVs;
 - the Logistic Support Agreement that the Army has entered into with General Dynamics to secure support services for the LAV; and
 - a moving target range for LAV gunnery training.
- 4.2 We examine how the funding shortfall has been addressed by the Defence agencies, and assess the likely effect on the LAV project.

Background

What are spare parts?

- 4.3 Spare parts include components that wear out over time, and rotables. Rotables are larger components that can be replaced when they fail, and can then be repaired by Army technicians (for example, a gearbox).
- 4.4 The spare parts required to operate and maintain the LAVs represent a significant capital cost to the LAV project, and an ongoing operational cost to the Army.²⁷

What is the Logistic Support Agreement?

- 4.5 The Logistic Support Agreement is a contract between the Army and General Dynamics. For an annual fee, General Dynamics provides the Army with support services throughout the 25-year life of the LAVs. The agreement allows the Army to purchase other services²⁸ as required.

²⁷ The initial purchase of a pool of spare parts to support any capability is made from the capital funding allocated to the project by the Government. This initial purchase establishes an inventory (sometimes referred to as the 'spares pipeline'), which is maintained by using operational funding to replace items from the 'pipeline' as they are used for ongoing maintenance.

²⁸ Other services include technical support, training support, and engineering changes.

- 4.6 An important feature of the Logistic Support Agreement arrangement is that it is designed to facilitate knowledge transfer from General Dynamics to the Army, so that the Army can improve its technological expertise.

What is a moving target range?

- 4.7 A moving target range is a training facility that would allow LAV crews to practise manoeuvring while firing at static and moving targets.
- 4.8 The Army does not currently have a moving target range – such a range is required to test the full capacity of the LAV gunnery system, and to ensure that crews are fully trained.

Funding shortfalls quantified

Spare parts

- 4.9 Insufficient funding was allocated for the purchase of spare parts at the outset of the LAV project. The Defence agencies recognised this before signing the contract in January 2001, and obtained additional funding to increase the total capital budget for spare parts to \$11.351 million.
- 4.10 However, there was still a shortfall between the amount required for spare parts and the amount available in the LAV project budget.
- 4.11 In July 2003, the Army informed the Chief of Defence Force that it would be impossible to have the first LAV battalion at the directed level of capability by December 2005 “*if the spare parts pool is not in the \$25-\$30 million range*”.
- 4.12 Based on the amounts quoted in paragraphs 4.9 and 4.11, a capital-funding shortfall of about \$14-19 million is indicated.

Logistic Support Agreement

- 4.13 An outline of what a Logistic Support Agreement might cover was included in the prime contract²⁹, and funding was allocated for negotiation of the final agreement. However, at the time the prime contract was signed, no funding was provided for either the annual fee associated with the agreement or the costs for provision of other services.
- 4.14 In June 2002, the Army, for the first time, budgeted an amount of \$400,000 a year to cover the expected cost of the Logistic Support Agreement. This figure was reached after discussions between the Army and General Dynamics.

²⁹ The main contract signed in January 2001 between the Government and General Dynamics for the purchase of 105 LAVs.

- 4.15 The Logistic Support Agreement was signed in October 2003, and the NZDF subsequently provided additional funding for the 2003-04 and 2004-05 years. The total cost of the agreement for each year from 2003-04 to 2008-09 is shown in Figure 8 below. There is a shortfall of at least \$1.7 million a year for 2005-06 and future years.

*Figure 8
Projected costs of the Logistic Support Agreement*

	2003-04 Actual \$m	2004-05 \$m	2005-06 \$m	2006-07 \$m	2007-08 \$m	2008-09 \$m
Fixed costs	1.0	2.1	1.8	1.7	1.7	1.7
Costs of other services*	0.4	0.4	0.4	0.4	0.4	0.4
Total costs	1.4	2.5	2.2	2.1	2.1	2.1
Funding secured	1.4	2.5	0.4	0.4	0.4	0.4
(Shortfall)	-	-	(1.8)	(1.7)	(1.7)	(1.7)

* Funding has been secured for costs of other services.

- 4.16 While the value of the shortfall in funding for the Logistic Support Agreement is not significant when compared to the overall cost of the LAV project, it does illustrate that the original budget for the LAV project did not provide for some items important to the introduction into service of the LAVs.

Moving target range

- 4.17 Funding for the moving target range was not included in the original LAV capital budget approved by Cabinet. The Defence agencies have not been able to explain why the moving target range was not included, although they indicated that it is likely to have been an attempt to limit the overall costs of the LAV project.
- 4.18 In February 2003, the Army put forward a proposal to include funding for the moving target range in the NZDF's Capital Programme (Minor)³⁰ for the financial year ended 30 June 2004. The Army's proposal stated the cost of the moving target range as \$4.1 million.
- 4.19 The Chief of Defence Force decided that, while the moving target range was a high priority, competing priorities meant that funding would not be available until 2004-05. Funding of \$2.409 million for the construction of the moving target range was allocated for 2004-05, and \$1.655 million was allocated for the purchase of the required equipment in 2005-06. The moving target range is scheduled for completion in December 2006.

³⁰ The NZDF is responsible for managing approval for the funding of minor capital project bids, such as the moving target range.

Efforts to address the funding shortfalls

Spare parts

- 4.20 After reviewing and reducing the list of required spare parts, the NZDF and the Army considered alternative ways of increasing funding for spare parts to the \$25-30 million range required by the Army. These alternative funding options included:
- outsourcing ownership of LAV spare parts³¹;
 - use of the LAV project contingency fund³²;
 - putting forward Budget Initiatives for 2004-05;
 - funding spare parts from the NZDF rotables budget³³;
 - using proceeds from the sale of the M113 fleet³⁴; and/or
 - using compensation for an increase in LAV weight to purchase spare parts³⁵.
- 4.21 While the NZDF and the Army have been thorough in their consideration of other sources of funding for spare parts, efforts to incorporate these sources of funding into a workable solution have, at times, been hampered by confusion and error.
- 4.22 Work to address the spare parts funding shortfall took place between January and November 2003. On 7 November 2003, the Chief of Defence Force wrote to the Chief of Army setting out how the Army was expected to address the spare parts funding shortfall. He stated that under the proposed funding solution, the Army would be able to have funding for spare parts of up to \$30 million³⁶ by late-2005.

³¹ This option was ruled out, as it represented a significant increase in cost over the life of the LAVs.

³² The LAV project budget includes \$14.15 million set aside as contingency funding for any unforeseen risks that may arise. Throughout 2003, the Chief of Defence Force indicated that any unexpended contingency funds would be returned for re-allocation to other high priority defence projects.

³³ The NZDF has a budget for the purchase of rotables. Additional funding of \$2.6 million was added to the LAV spare parts budget in July 2003 for the purchase of LAV rotables.

³⁴ The M113s are being replaced by the LAVs.

³⁵ Compensation for an increase in LAV weight, and the associated increase in maintenance costs, was agreed between General Dynamics and MoD (Acquisition) on 13 February 2004. The compensation is in the form of a \$4.75 million credit on the initial spare parts procurement.

³⁶ This figure included:

- \$14.2 million as the original project budget for spare parts (rather than \$11.351 million as stated in paragraph 4.9);
- an additional \$3 million a year for 2 years in funding from the NZDF rotables budget;
- \$7.8 million in anticipated funding from General Dynamics as compensation for an increase in the weight of the LAVs; and
- a requirement for the Army to make \$2 million a year savings from its operating baselines.

- 4.23 There was evidence of poor communication and a lack of clarity around the status of the proposed funding solution. In addition, aspects of the solution were inaccurate. For example:
- Dollar amounts did not reconcile with the actual funding available.
 - There was confusion between the MoD and the NZDF about whether the weight compensation for the LAVs was being negotiated in Canadian or New Zealand dollars.
 - It was proposed that the Army contribute to the funding solution by making operating savings. The use of operating funding to purchase capital items would have been unlawful without Parliamentary authority, and this is a matter that would have required consultation with the Treasury. We saw no evidence of the NZDF consulting with the Treasury before proposing this solution.
- 4.24 Although the solution proposed in November was evidently inaccurate, the Chief of Army reported to the Executive Capability Board in December 2003 that he understood that proposals for the funding for spare parts had been resolved. However, in February 2004, the Chief of Army sent the Chief of Defence Force an alternative solution to the funding shortfall³⁷ for spare parts.
- 4.25 The Army's alternative funding solution included the same estimate of \$7.8 million for weight compensation as used in the Chief of Defence Force's correspondence on 7 November 2003. As noted previously (see paragraph 4.20 and footnote 35), the actual amount of weight compensation agreed between the MoD and General Dynamics was \$4.75 million. This amount was agreed on 13 February 2004, the same date that the Army sent its alternative funding solution to the Chief of Defence Force³⁸.
- 4.26 In our view, the Army's alternative funding solution should have included a more accurate estimate of the likely amount of weight compensation. This information could have been obtained from MoD (Acquisition) staff.
- 4.27 We were informed in August 2004 that the Defence agencies consider that funding for spares has been resolved to a satisfactory outcome. They expect that the anticipated funding levels will allow the Army to reach its December 2004 and December 2005 goals for the LAV project. The Army is satisfied that there is sufficient funding available for spare parts for current motorisation training and operation, for the first 2-3 years.

³⁷ The alternative solution included:

- Initial project funding of \$11.8 million;
- \$2.6 million from the NZDF rotables budget in 2003-04 and \$3 million from rotables in 2004-05 and 2005-06 respectively;
- an estimated \$7.8 million from General Dynamics in weight compensation; and
- \$1.5 million from sale of the Army's M113 fleet.

³⁸ The Army notes that funding for spare parts of \$25-30 million will enable a LAV battalion to be at directed level of capability by December 2005. The agreed amount of weight compensation is still within the range of funding that the Army says is required.

Logistic Support Agreement

- 4.28 In our view, an allowance should have been made for the potential financial implications of the Logistic Support Agreement much earlier than June 2002.
- 4.29 Signing the prime contract without defining exactly what the Logistic Support Agreement would cover put General Dynamics in a strong position to negotiate the terms of the final Logistic Support Agreement. The Army Risk Register notes that –
- ... leverage to negotiate the Logistic Support Agreement was significantly eroded by the signing of the Prime contract with only a 'statement of principles' negotiated as part of the Prime contract.*
- 4.30 As shown in Figure 8 on page 39, the NZDF approved funding of \$1 million for the Logistic Support Agreement in 2003-04 and \$2.1 million in 2004-05. The NZDF's 2004-05 budget initiatives also sought operating funding for the Logistic Support Agreement of \$2 million a year for each financial year from 2005-06 to 2008-09. This bid was not successful.
- 4.31 The Army has not yet secured funding for the ongoing cost of the Logistic Support Agreement from 2005-06 onwards. We have been told that the NZDF's forward budgeting, operational planning, and prioritising process will manage the cost of the Logistic Support Agreement. The Defence agencies expect that some of the operating savings related to the withdrawal of the M113 fleet will be able to be applied to the Logistic Support Agreement.³⁹

Moving target range

- 4.32 The current lack of a moving target range affects the ability of LAV crews to become competent in firing at moving targets – a skill that is required by the Employment Contexts included in the NZDF 2004/2005 Output Plan.
- 4.33 Without a moving target range, the Army's training of LAV crews to fire at moving targets is limited to using computer simulators.⁴⁰
- 4.34 In a deployment situation, there are 2 options for managing the skill limitations that exist between the directed level of capability and the operational level of capability. These are:
- that the skill limitations are reported to the Minister at the time of deployment, and the LAVs' mission may be tailored to fit the available skills; or

³⁹ This will be in addition to any proceeds received from the potential sale of the M113s. Any such proceeds are earmarked for additional spares.

⁴⁰ It was always the Army's intention to use computer simulators for the training of LAV crews. However, on their own, the simulators are not sufficient to equip the crews with all the skills required.

- the skills required are built up to the required level during the preparation for the operational level of capability (as was done with the East Timor deployment) by using the facilities of an overseas partner.
- 4.35 Currently, the Army plans to meet the directed level of capability milestones for December 2004 and December 2005, but to a lower level than would be the case had the LAV crews trained on a moving target range.
- 4.36 The cost of the moving target range is small in comparison to the overall cost of the LAV project. However, the exclusion of the moving target range from the original capital budget approved by Cabinet now means that the limitations will need to be managed as outlined in paragraph 4.34 if the LAVs are to be deployed operationally. These limitations will continue until the moving target range has been completed (scheduled for December 2006) and sufficient LAV crews have been able to train on the facility.

Our overall conclusions

- 4.37 The funding shortfalls that we identified were not large when compared to the overall cost of the LAV project. However, the respective Army and MoD Risk Registers noted that these 3 issues posed risks to the introduction into service of the LAVs, and to the ongoing effectiveness of the LAVs that were purchased.
- 4.38 In our view, more accurate estimates of the cost of these items should have been made in the original LAV project budget. It is inappropriate that the introduction of a large capital investment, such as the LAVs, should be put at risk by an initial failure to adequately provide for relatively small aspects of the project.
- 4.39 We are satisfied that Defence agencies have put a lot of effort into finding a solution to these funding shortfalls, in line with the Government's direction that no additional capital funding would be allocated to the LAV project.
- 4.40 However, the absence of a complete financial assessment of all aspects of the LAV project has led to funding for some important items being underestimated, or not incorporated at all, in the project budget. This has caused difficulties for the Defence agencies during the introduction-into-service part of the project.
- 4.41 For future acquisitions, a full assessment of all of the financial implications of a project should be undertaken, as we advocate in Recommendation 2. Though we recognise that an assessment of this nature will include an initial degree of uncertainty around funding estimates, we consider that a regular review process could be used to manage this uncertainty.
- 4.42 The Capability Management Framework requires a formal consultative process with other Government departments in regard to submissions for Cabinet approval, and provides guidance for preparation of a business case. This

guidance states that it “may be critically important” to seek “an independent review of the case by technical and finance scrutineers”.

- 4.43 We consider that – for major military capability acquisition projects, such as the LAV project – financial and technical analysis undertaken to support proposals to Cabinet should be independently reviewed.

Recommendations

Recommendation 6

We recommend that reservations and risks relating to early funding estimates for any project items be explicitly stated in papers seeking Cabinet approval, in order to give decision-makers the best and most complete information possible. These risks should be regularly reviewed and estimates updated periodically.

Recommendation 7

We recommend that – for major military capability acquisition projects – the analysis undertaken to support proposals put to Cabinet for approval be subject to independent review. This review should examine the financial and technical details of the proposal. In cases where an independent review is not considered necessary, the reasons why not should be identified.

Recommendation 8

We recommend that every effort be made to negotiate any Logistic Support Agreement concurrently with the prime contract, when seeking to secure support services for future military capability acquisitions.

Part 5 – Life cycle costing analysis

Introduction

5.1 In this Part we:

- explain life cycle costing analysis;
- discuss the analysis used by the Defence agencies to estimate the ongoing costs associated with the LAV project; and
- examine how life cycle costing analysis has been introduced to the Defence agencies, and how it is being used in relation to the generic military capability acquisition process.

Background

What is life cycle costing analysis?

5.2 Life cycle costing analysis identifies and documents all the costs involved throughout the life of a military capability.⁴¹ These include the cost of the initial acquisition of the equipment, and the amount required to operate, maintain, and eventually dispose of the equipment.

5.3 Life cycle costing analysis is important, and needs to be undertaken to give the Government the best possible estimate of the ongoing costs associated with a new military capability at the time the decision is made to approve the acquisition of equipment. It is also necessary for making accurate operating baseline adjustments throughout the life of the equipment.

Our first report

5.4 Our August 2001 report found that the capability requirements necessary for the Army to maintain 105 LAVs had not been fully assessed, costed, or provided for.

⁴¹ These costs are known as the through-life costs of a capability, and also as the total cost of ownership of a capability.

- 5.5 We also noted that there was doubt over the accuracy of the estimated annual operating costs of the LAVs. In January 2001, the steady-state annual operating costs were estimated to be \$39 million⁴² for the life of all the vehicles.

Use of life cycle costing analysis

Life cycle costing analysis for the Light Armoured Vehicle project

- 5.6 In December 2001, Army Finance personnel began using life cycle costing analysis to conduct an in-depth study of the operating costs of the LAV.
- 5.7 The Army experienced difficulties obtaining the performance data required to perform its analysis. This was because the LAV is a relatively new piece of military equipment, so only limited performance data is available. In addition, there were communication problems between the Army and MoD (Acquisition) that we identified in our first report.
- 5.8 The Army obtained performance data⁴³ from General Dynamics and the Canadian and Australian armies (which have similar vehicles), and adjusted that data for New Zealand conditions. This information was used for Army Finance's life cycle costing analysis, and to update the cost estimates included in the Army's Five Year Operating Plan.
- 5.9 The 2003-04 version of the Army's Five Year Operating Plan estimated the steady-state annual operating costs of the LAVs as \$48.8 million a year. This is \$9.8 million a year more than was estimated in January 2001. Depreciation accounts for a major portion of the cost estimate.
- 5.10 The Army's current estimated annual operating costs (for the 5-year period 2003-04 to 2007-08) are shown in Figure 9 on the next page. The current steady-state figure is from 2007-08 onwards.
- 5.11 The Army considers that it will take at least 2 years of LAV use in New Zealand to collect enough performance data to produce more reliable cost estimates.

⁴² The January 2001 paper seeking the approval of the Ministers of Finance and Defence estimated the annual operating cost for the LAVs at \$39 million a year (including depreciation of about \$30 million a year) over the 25-year life of the vehicles.

⁴³ The data included the number of training kilometres each vehicle travelled, the amount of ammunition required for training, failure rates of parts, and the average cost of repairs.

Figure 9
Current estimated annual operating costs for
105 Light Armoured Vehicles

	2003-04 Actual \$m	2004-05 \$m	2005-06 \$m	2006-07 \$m	2007-08 \$m	2008-09 \$m
Repairs and maintenance	0.0	7.5	8.6	9.4	10.0	10.0
Fuel, tyres, etc.	0.2	0.4	0.4	0.4	0.4	0.4
Ammunition for training	0.6	2.5	2.7	2.5	2.7	2.7
Logistic Support Agreement	1.4	2.5	2.2	2.1	2.1	2.1
<i>Gross operating costs</i>	2.2	12.9	13.9	14.4	15.2	15.2
Less savings*	(1.0)	(1.0)	(1.5)	(1.5)	(1.5)	(1.5)
<i>Net operating costs</i>	1.2	11.9	12.4	12.9	13.7	13.7
Depreciation	1.3	11.1	30.3	35.1	35.1	35.1
Ownership costs**	2.5	23.0	42.7	48.0	48.8	48.8

* Related to reassignment of operating costs of the M113 and Scorpion vehicles that the LAV is replacing.

** The figures of \$48.8 million for 2007-08 and 2008-09 reflect the ongoing steady-state costs for annual operation and maintenance of the 105 LAVs.

5.12 In our view, the Army followed a reasonable process in identifying the costs of operating and maintaining the LAVs to include in the Five Year Operating Plan through to 2008-09. However, the life cycle costing analysis for the LAV project has not yet been fully completed, and the costs have not been extrapolated for the life of the LAVs.

Introduction of life cycle costing analysis into the Defence agencies

5.13 In September 2002, the Chief of Defence Force issued Defence Force Order 10/2002, obliging the NZDF and the single armed services to use life cycle costing analysis as part of the military capability acquisition process.⁴⁴

5.14 The Defence Force Order applied to the LAV project, so a full life cycle costing analysis should have been completed for the LAVs by now (and not just a 5-year estimate).

5.15 In December 2003, the Foreign Affairs, Defence and Trade Select Committee reported on the 2002-03 Financial Review of the MoD and the NZDF. The Committee noted that life cycle costing is a crucial part of decision-making in regard to capability acquisition.

5.16 Life cycle costing analysis for all military capability acquisition projects was made compulsory for all of the Defence agencies when the Capability Management Framework was formally signed by the Secretary of Defence and the Chief of Defence Force in April 2004. The Capability Management

⁴⁴ The MoD was not covered by this order, as Defence Force Orders apply only to the NZDF.

Framework requires life cycle costing to be undertaken in accordance with the Defence Force Order.

Have the requirements of the Defence Force Order been met with respect to LAVs?

- 5.17 As noted in paragraph 5.6, the Army began using life cycle costing analysis of the LAVs in December 2001 – before the September 2002 Defence Force Order that made the use of life cycle costing mandatory throughout the NZDF.
- 5.18 Under the Defence Force Order, the Army must identify the cost implications of actual or planned modifications, upgrades or life extensions. This has not yet been done for the LAVs.
- 5.19 The Defence Force Order also notes that, historically, insufficient focus has been given to costs associated with disposal of military equipment. The Army’s life cycle costing analysis for the LAVs does not include likely disposal costs.
- 5.20 The Defence agencies informed us that their ability to make any meaningful assessment of upgrades to the LAVs, or the costs of disposal, is very limited, as these events are many years away.
- 5.21 We acknowledge that there may be difficulties at times in obtaining reliable data on which to base life cycle costing analysis. However, any limitations in the analysis, and assumptions made around it, can be highlighted at the time the analysis is presented to decision-makers.
- 5.22 We note the effort of the Defence agencies in relation to the introduction of life cycle costing analysis⁴⁵. Those involved in using the analysis process told us that there has been an increase in commitment by all of the Defence agencies to use life cycle costing analysis for acquisitions. They said that this has resulted in better working relationships between key people, and an improvement in the quality of the data obtained and its subsequent analysis. It has been a positive step forward from the communication problems (see paragraph 5.7) that existed when the Army was carrying out its in-depth study of LAV operating costs.

Recommendation

Recommendation 9

We recommend that life cycle costing analysis be completed for the Light Armoured Vehicle project, as required by the Capability Management Framework, including a calculation of the whole-of-life costs for the 105 LAVs. These costs should continue to be monitored throughout the life of the LAVs in order to assist with re-adjusting operating baselines.

⁴⁵ For example, a Life Cycle Costing Analysis Cell was established in the NZDF Resources Branch to act as a centre of excellence for life cycle costing analysis. Also, about 250 people from throughout the Defence agencies have attended life cycle costing analysis training courses.