



**Report of the**

**Controller and**

**Auditor-General**

*Tumuaki o te Mana Arotake*

**on**

**Ministry of Defence:**  
**Acquisition of Light**  
**Armoured Vehicles and**  
**Light Operational Vehicles**

**August 2001**

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## ***THE LIGHT OPERATIONAL VEHICLE ACQUISITION***

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## Overview by the Controller and Auditor-General

This report is about the acquisition of two types of new vehicles for the New Zealand Army (Army):

- light armoured vehicles, which carry troops and provide fire support in battlefield situations; and
- light operational vehicles, which are all-wheel drive vehicles that fulfil roles such as transporting ammunition, equipment and supplies.

The Government signed a contract on 29 January 2001 to purchase 105 *LAV III* light armoured vehicles, and the first vehicles are planned to be delivered in September 2003. The current cost estimate is \$677.464 million (GST inclusive).

The tender for the light operational vehicle was cancelled in May 2000 pending an inquiry into the conduct of the tender. The process was subsequently restarted and the re-tendering of the light operating vehicle is currently in progress.

In November 2000, the Secretary of Defence asked me to undertake a review of the processes for both acquisitions. I agreed to the request because the Audit Office had been intending for a number of years to examine major military acquisitions and this was a good opportunity to do so. I also thought it would be a relatively straightforward exercise.

Some 10 months later, however, I find myself reporting about a wider range of issues – some particular to the acquisitions we looked at, some symptomatic of more fundamental problems, and some a reflection of systemic problems in and between the Ministry of Defence (the MoD) and the New Zealand Defence Force (the NZDF). As always, the Audit Office has a real interest in looking beyond the problems at hand to what are the underlying issues and how they might be resolved for the future.

To carry out our review we:

- interviewed staff from the MoD, the NZDF, Army and the Treasury (including the New Zealand Debt Management Office);
- reviewed documents and files held by the MoD, the NZDF and Army relating to these acquisitions; and
- wrote to some of the tenderers for their perspective on the process followed by the MoD.

At the completion of our field work, we briefed the Secretary of Defence on our preliminary findings. Because of the conflicting views we had received on important matters, we agreed with the Secretary of Defence that we should re-interview key people to try and reconcile these different perspectives.

From our discussions with the Secretary of Defence, we also formed the view that there were other issues we needed to report on – in particular, that there had been a lack of documentation of important elements of the acquisitions. We therefore undertook further work to locate and examine additional papers where we were able to do so. A feature of this review has been that important issues continued to emerge throughout our examination, and we continued to source relevant documentation right up to publication.

Our review focused on these two acquisitions only – we did not examine other acquisitions for either Army or the other two Services. Nevertheless, these projects represent the largest Army re-equipment programme since World War II. The review was a very complex exercise – it involved all elements of our legislative audit mandate, including issues of performance, waste, probity, accountability, and authority.

We have compiled this Report from the markedly divergent views of the MoD, the NZDF and Army. Documentary evidence was often poor. Key decisions were often not recorded. Nevertheless, we feel that we have assembled a compelling picture that illustrates problems in the key areas of:

- governance;
- relationships;
- accountabilities; and
- defence planning.

The legislative and institutional arrangements surrounding the MoD and the NZDF have not helped in these acquisitions. The arrangements include:

- a Defence Planning System that translates the Government's defence policies and priorities into the size, shape and composition of the NZDF, together with the capabilities (including equipment) required; and
- the MoD having statutory responsibility for acquisitions, in consultation with the NZDF.

A strategically robust and fully operational Defence Planning System is absolutely fundamental to the way in which the MoD and the NZDF go about their business. However, in practice we found that the Defence Planning System, despite having existed for nearly 10 years, has not actually produced a full set of outputs. In our Report to Parliament of December 2000: *Central Government: Results of the 1999-2000 Audits* we discussed the need for better information on capability, fiscal risks and funding needs for the NZDF.<sup>1</sup> In the absence of a fully operational Defence Planning System, we do not believe that realistic and reliable forecasts can be made for the NZDF's capital and operating funding in the future.

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<sup>1</sup> Parliamentary paper B.29[00c], pages 56-58.

In theory, the bilateral approach between the MoD and the NZDF could have worked. Instead, we observed an acquisition process based around a tripartite relationship between the MoD, the NZDF and Army. This gave rise to an environment of poor communication, confusion over roles, and dysfunctional relationships. The acquisition projects have slowed, costs have increased, and relationships have been damaged. As a result, Army currently continues to manage with obsolete equipment that is well beyond its useful life – despite the fact that successive Governments have given priority to Army modernisation.

We believe that a number of things to need to happen:

- The Defence Planning System needs to be made operational and produce credible outputs. It underpins the future of the NZDF and the required capital and operational budgets. We are sceptical that the current System will provide the answers.
- A more pragmatic approach needs to be taken to the acquisition method – one model does not necessarily fit all purchase decisions.
- The dysfunctional relationships need to be made functional – and be underpinned by clear accountabilities, a more trusting environment, and more face-to-face communication. For example:
  - there needs to be strong project governance to help resolve or avoid the type of disputes that have plagued both of these acquisitions; and
  - there need to be open discussions and transparent decisions that are properly documented.

DJD Macdonald  
Controller and Auditor-General

22 August 2001

# 1 – Planning For and Acquiring Military Equipment

## The Main Parties

- 1.1 The three main parties in the matters covered by this Report are:
- the New Zealand Army (Army);
  - the New Zealand Defence Force (the NZDF); and
  - the Ministry of Defence (the MoD).
- 1.2 These are represented in Figure 1 on the opposite page, which shows the organisational structure relating to military purchasing.

## Roles and Responsibilities

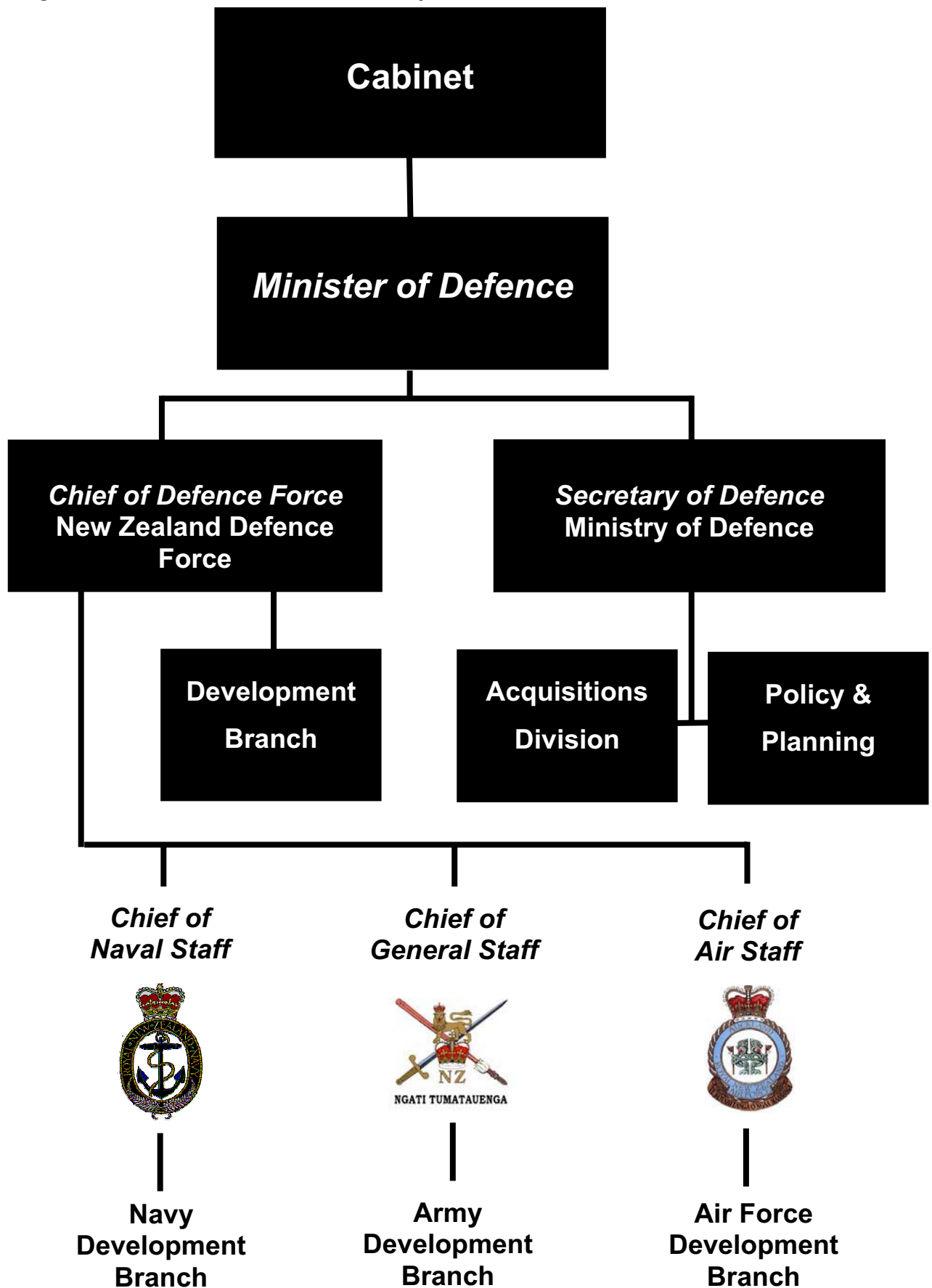
- 1.3 The Chief of Defence Force – appointed by the Governor-General – is the principal military adviser to the Government, and commands the NZDF. The NZDF comprises the three Services with their respective Chiefs of Staff, who are also appointed by the Governor-General. Army is one of three Services within the NZDF – the others being the Royal New Zealand Navy and the Royal New Zealand Air Force.
- 1.4 Under the Defence Act 1990, the Secretary of Defence (who heads the MoD) is the principal civilian adviser to the Government.
- 1.5 Army's Chief of Staff, known as the Chief of General Staff, has two roles – as head of Army and a staff officer in the NZDF. Army sets out its case for an equipment<sup>2</sup> acquisition in a *Force Development Proposal*. Army's role in an acquisition process is to:
- identify shortfalls in capability (in this case, in its existing fleet of military vehicles);
  - recommend to the NZDF how the shortfalls should be remedied; and
  - estimate the costs of equipment acquisition.

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<sup>2</sup> In this Report, we refer to the purchase of military *equipment*. However, more than just a piece of equipment is being purchased, and this is referred to as *capability*. The term *capability* describes the equipment, together with the training and infrastructure that must be put in place for effective use of the equipment.



Figure 1  
Organisational Structure for Military Purchases



- 1.6 The Chief of Defence Force is responsible to the Minister of Defence 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.
- 1.7 The NZDF's role in an acquisition of Army equipment includes:
- evaluating Army's case as set out in the Force Development Proposal;
  - ensuring that the capability being sought matches New Zealand's identified strategic intent, capability requirements, and military needs;
  - ensuring that the purchase can be funded and represents value for money, and that there is no "gold plating" (in the sense that the equipment being sought will not contain features that are unlikely to be required – for example, buying vehicles with armour protection beyond the required capability);
  - ensuring that there is compatibility with the other Services' equipment and requirements for equipment;
  - providing the prime point of liaison with the MoD, as well as liaising with other government departments on the capability being sought; and
  - providing funding for the purchase.
- 1.8 The responsibilities of the MoD include:
- providing advice to the Government on defence policy; and
  - the procurement (i.e. purchase) of military equipment.
- 1.9 Section 31 of the Defence Act requires the Secretary of Defence and the Chief of Defence Force to consult each other in relation to any advice that either intends to give to the Minister on major matters of defence policy.
- 1.10 The MoD's procurement function is handled by its Acquisitions Division. After work on a Force Development Proposal has been completed by Army and the NZDF, the Acquisitions Division is responsible for:
- seeking the necessary Cabinet approvals; and
  - starting the process of purchasing the equipment.

- 1.11 In the course of our enquiries, we found confusion about the roles of the NZDF and Army. The NZDF and the MoD view Army as the *end user* of the equipment, and the NZDF as the *customer*. Army considers that this distinction is artificial – because Army is a part of the NZDF, and it sees itself as both end user and customer.
- 1.12 In the event, the MoD and the NZDF ran the acquisitions using the model of the NZDF as customer and Army as the end user. This provided a context for the acquisitions where there were fundamentally different views within the NZDF – between Army and staff working directly to the Chief of Defence Force.
- 1.13 There were difficulties with communications on the acquisitions – communications with the MoD were handled by the Chief of Defence Force staff, but Army felt it was left out of the communication loop. The problems that this created were, in our view, exacerbated by other shortcomings in the arrangements for the projects that we discuss later in this Report – such as the lack of appropriate governance structures for the projects.

## Defence Planning

- 1.14 The Defence Planning System, introduced in 1992, is intended to ensure a co-ordinated approach to the planning of defence capability. The first version of the System was discontinued in 1996 because major efforts were required to substantially revise and simplify it. A second version was approved for implementation in 1998 – it describes some 50 processes that are intended to ensure the translation of Government defence and national security objectives through to NZDF and MoD operations, force structure, and capability acquisitions. The processes required by the Defence Planning System are also intended to ensure that there is appropriate consultation at all stages.
- 1.15 An outcome of the Defence Planning System is the Defence Long Term Development Plan. This should bring together the costs of the individual force structure reviews and Force Development Proposals into a 5-year capital expenditure plan, a 10-year capital development plan, and a 20-year capital estimate. The Defence Long Term Development Plan is updated on an annual basis as Proposals move onto the 5-year plan and are approved for acquisition.
- 1.16 Within the MoD, the Policy and Planning Division plays a central role in the Defence Planning System and in the formulation of medium and long-term plans for force structure development. The planning is undertaken in conjunction with the Development Branch of the NZDF, which also has a central and co-ordinating role in ensuring the acquisition of the appropriate military capabilities.

- 1.17 We considered the Defence Planning System in relation to the acquisitions that are the subject of this review. In our view, in the process that was followed, neither the MoD's Policy and Planning Division nor the NZDF's Development Branch played the central roles envisaged in the planning of military capability. The clear policy and capability requirements that should derive from the Defence Planning System were incomplete.

## The Acquisition Process

- 1.18 An overview of the defence acquisition process is shown in Figure 2 on the opposite page.
- 1.19 Once the Force Development Proposal for an acquisition has been approved and Cabinet gives *approval in principle* to commit funds, the planning stage can be completed and the implementation stage can begin. The MoD is expected to purchase equipment at lowest cost and involving least risk, using a process that is transparent and commercially acceptable. The main features of the MoD's acquisition process are described below.

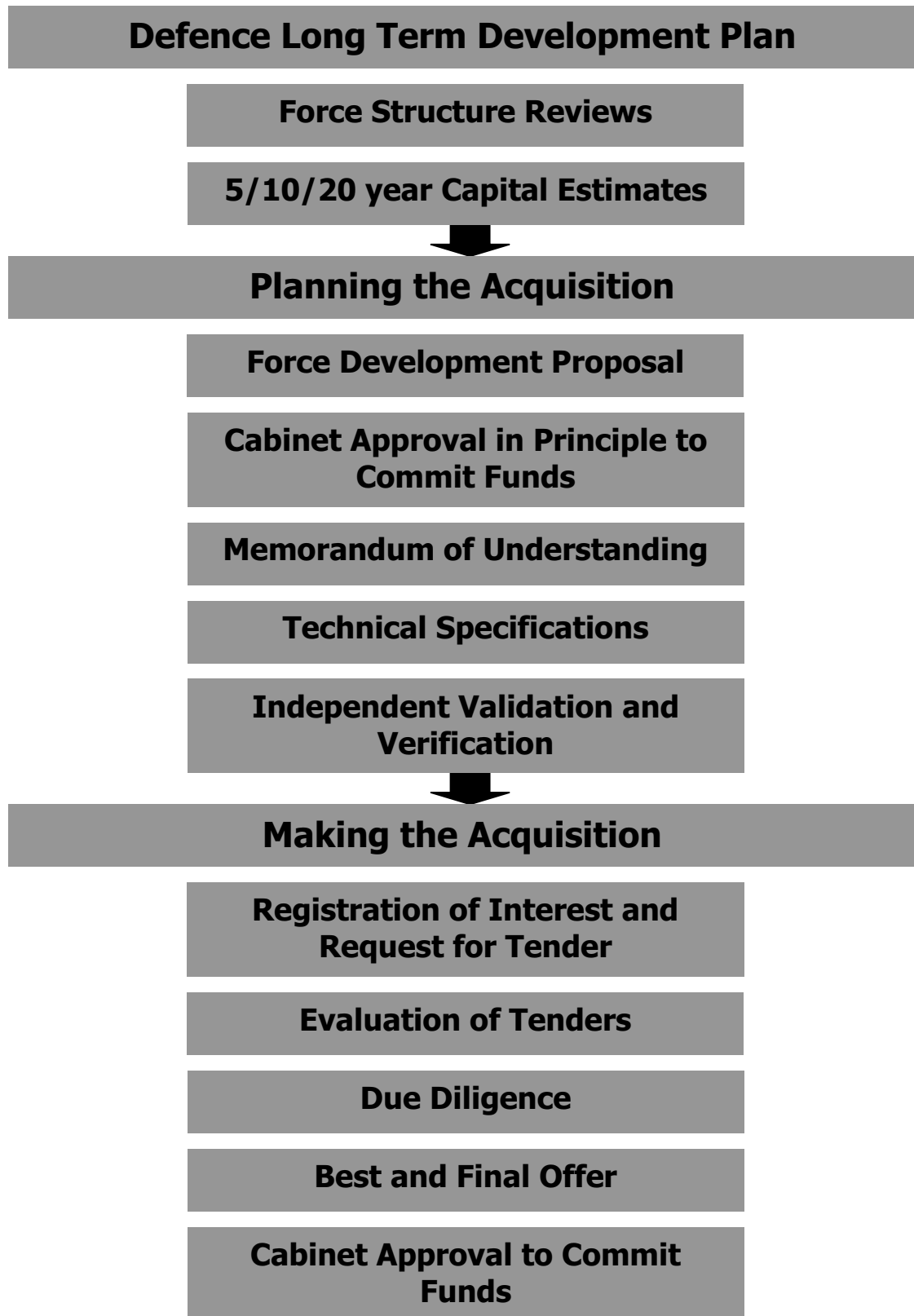
### Memorandum of Understanding

- 1.20 A partnership is formed between the MoD's Acquisitions Division, the NZDF and the relevant Service (in this case Army). The responsibilities of each party in relation to the purchase of the equipment are set out in a **Memorandum of Understanding**.

### Technical Specifications

- 1.21 The general policy is to buy "off the shelf" where equipment is available and meets defence requirements. Off the shelf is seen as cheaper than "design and build", and offers the opportunity for equipment to be standardised with that used by New Zealand's allies.
- 1.22 The user requirements in the Force Development Proposal are developed into detailed **technical specifications**. A project team writes the technical specifications – the team is under the control of the MoD's Acquisitions Division and comprises staff from the Division and staff seconded from Army to help ensure that the specifications and tender documents reflect Army's needs.
- 1.23 The technical specifications detail all the items that must be provided in the equipment and specify the performance requirements. This allows potential suppliers to determine whether they have equipment that will meet these specifications. It also allows the MoD to comprehensively evaluate the equipment offered, and helps to ensure that the equipment that is eventually purchased matches the equipment being sought.

Figure 2  
Overview of Defence Acquisition Process



## Independent Validation and Verification

- 1.24 Independent validation and verification:
- is intended to ensure that a competitive tender can be conducted; and
  - checks:
    - that the equipment being sought can be obtained off the shelf;
    - whether there are any opportunities for cost savings; and
    - whether there are any errors in the technical specifications.

## Registration of Interest and Request for Tender

- 1.25 Calling for **Registration of Interest** involves advertising that a tender is to be held and inviting potential suppliers to register for receipt of tender documents.
- 1.26 A **Request for Tender** with tender documents is sent to each potential supplier that registered an interest in the tender.

## Evaluation of Tenders

- 1.27 The project team conducts an **Evaluation of Tenders** received against the technical specifications, scores them, and prepares a shortlist of those tenders that best match the specifications. A Tenders Review Board, comprising staff from the MoD and the NZDF, assesses the results of the tender evaluation and decides which tenders should be considered for award of the contract.

## Due Diligence

- 1.28 Staff from the Acquisitions Division of the MoD, and an expanded project team, conduct **Due Diligence** of the short-listed suppliers. Due diligence involves visits to all short-listed suppliers to ensure that their tender proposals are factually correct and achievable. The outcome of due diligence, including recommendations as to the most suitable option, is presented to the Tenders Review Board.
- 1.29 If the Tenders Review Board agrees with the outcome of the due diligence exercise, it will direct that a *Best and Final Offer* be sought from the short-listed tenderers.

### Best and Final Offer

- 1.30            Some time will have elapsed since the tender process began, and the **Best and Final Offer** stage obtains the most current offer from the tenderers. A further recommendation is made to the Tenders Review Board as to the preferred provider. If approved, the next stage is to seek Cabinet approval.

### Approval to Commit Funds

- 1.31            Following acceptance of the Best and Final Offer from the preferred supplier, the Acquisitions Division of the MoD prepares a submission to Cabinet seeking an **Approval to Commit Funds**. This provides approval for the funds necessary to buy the equipment. If Cabinet approval is obtained, a contract will be sought between the MoD and the preferred supplier.

***THE LIGHT ARMoured  
VEHICLE ACQUISITION***



## 2 – Planning the Acquisition of the Light Armoured Vehicles

- 2.1 In this part of the report we describe and comment on the acquisition of the light armoured vehicles up to the implementation of the acquisition, which is then covered in Part 3. Detailed concluding comments on the acquisition are set out in Part 4, and the timeline is illustrated in the Appendix on page 64.

### The 1997 Defence Assessment

- 2.2 The 1997 Defence Assessment *The Shape of New Zealand's Defence – A White Paper* assessed Army needs as the rapid deployment of lightly equipped forces, as opposed to a force with tanks and self-propelled artillery. In relation to the White Paper, Army has commented that:

*New Zealand will therefore continue to base its Army on light infantry, but it must have sufficient firepower, mobility and protection to cope with the type of warfare that could occur within the Asia Pacific region, as well as the changing spectrum of peace support operations.*

- 2.3 Thus, Army's orientation is towards a range of conflict and peace support operations, from low to medium intensity. This orientation is different from the high intensity operations that would include close engagement by opposing forces with main battle tanks.

- 2.4 An orientation towards low-level conflict situations would not prevent Army from participating in mid-level conventional operations, but it would do so by:

*Identifying the enemy's critical vulnerabilities and exploiting them, taking an unexpected line, both in time and terrain, in order to defeat the enemy.<sup>3</sup>*

- 2.5 The 1997 Defence Assessment set the scene for the New Zealand Army to be equipped with light armoured vehicles.

### 1997 Force Development Proposal

- 2.6 In May 1997, Army submitted to the NZDF a Force Development Proposal that made a case to upgrade its existing fleet of armoured personnel carriers and to acquire new fire support vehicles. The NZDF agreed that the acquisitions were a high priority because:

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<sup>3</sup> Army Concept Paper, 1998.

- Army's 78 armoured personnel carriers used to transport infantry (M113A1s) are tracked vehicles which were purchased in the late 1960s. They are outmoded compared to modern armoured personnel carriers, as they are slow and the level of armour protection is no longer effective against modern small arms weaponry.
- Army's 26 fire support vehicles were *Scorpion* light tanks fitted with a large calibre gun. These vehicles were withdrawn from service in 1997.

2.7 One option considered but rejected at the time of the 1997 Force Development Proposal was to reduce the overall number of vehicles required by combining, in one vehicle, the infantry carrying and fire support functions. The existing M113A1s could have been upgraded to provide this dual function, but fitting a gun turret to the vehicles would have significantly reduced the space available within the vehicle for transporting troops.

2.8 A further option considered was to purchase a dual purpose vehicle, but the Force Development Proposal noted that:

*...the project team were unable to identify a vehicle which met the requirements or were within a reasonable compromise and were an economic solution.*

2.9 We understand that in 1997 Army was firmly of the view that it should continue with tracked armoured vehicles. However, the NZDF noted that other armies were moving to wheeled vehicles, and expressed concerns about which would be the best option. The estimated cost of a fleet of all-wheeled vehicles was \$220 million. The NZDF was concerned that, should there be a later decision to move to wheeled vehicles, the project estimate (\$160 million for tracked vehicles) would be put at risk.

2.10 The preferred solution identified in the Force Development Proposal was to upgrade the M113A1 fleet to M113A4 standard – which would significantly increase the capability and mobility of the armoured vehicles – and to purchase new fire support vehicles.

2.11 The 1997 Force Development Proposal also estimated the total vehicle requirement at 81, a significant reduction from the 104 existing armoured personnel carriers and obsolete fire support vehicles. This reduced fleet would comprise 69 armoured personnel carriers and 12 fire support vehicles, for a total cost of \$160 million (excluding GST). The Force Development Proposal provided no clear reasons for the reduced fleet size, and the NZDF also noted that there needed to be a more robust explanation of the quantity of vehicles required.

## **Cabinet Approval in Principle**

2.12 In March 1998, Cabinet gave approval in principle for the acquisition of armoured vehicles based on an upgrade of the armoured personnel carriers and the purchase of new fire support vehicles, to cost \$180 million (including GST). It was expected that this funding would be sufficient to upgrade

69 armoured personnel carriers and purchase 12 fire support vehicles. Cabinet also approved expenditure of \$675,000 from within the \$180 million for the tendering process. The Cabinet paper noted that it would be up to three years before the vehicles would be in service.

## Memorandum of Understanding

- 2.13 A Memorandum of Understanding was signed between Army and the MoD in April 1998. The NZDF was not a signatory. The Memorandum listed the staff involved in the project and their responsibilities. However, no key deadlines or milestones were established.
- 2.14 The Memorandum of Understanding should have signalled the start of the purchase process. However, this did not happen as there was still uncertainty within Army as to whether an upgrade of the existing armoured vehicles was the best option.

## Review of Equipment Type

- 2.15 Army continued to consider the requirements of modern battlefield situations where New Zealand troops were likely to be engaged. It concluded that New Zealand forces were more likely to be engaged in “manoeuvre warfare” (alongside more heavily equipped allies) than “attritional warfare”.<sup>4</sup> Wheeled vehicles are considered to have greater operational mobility compared to tracked vehicles.
- 2.16 Army completed a “wheels versus tracks” review by September 1998. The review recommended acquisition of a fleet of wheeled vehicles to transport troops – such vehicles are known as infantry mobility vehicles. Fire support vehicles would also be required, and they too would be wheeled vehicles. Wheeled infantry mobility vehicles and wheeled fire support vehicles are known collectively as “light armoured vehicles”.
- 2.17 It was clearly important that New Zealand acquire the type of vehicle that best suited its needs. However, in our view, investigations into whether the new armoured vehicles should have tracks or wheels should have been completed before the March 1998 paper to Cabinet and the Memorandum of Understanding of April 1998. Army had already adopted the manoeuvre warfare approach and in 1997 should have more carefully assessed whether – for a long-term acquisition of this kind – continuing with tracked vehicles fitted with this approach.

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<sup>4</sup> Attritional warfare involves the use of heavy tanks engaging other tanks or heavily defended positions – whereas manoeuvre warfare requires a vehicle type that must be fast and agile.

- 2.18 In December 1998, the MoD's Policy and Planning Division presented a capability analysis to the Office of the Chief Executives – a notional office comprising the heads of the MoD and the NZDF. The analysis defined the capability requirements for an infantry mobility vehicle. It identified over 800 tasks required of the vehicle within the scenarios that could be faced by Army. The tasks covered capabilities such as the level of armour protection, mobility, and weapon support. The Office of the Chief Executives found the capability analysis helpful, and concluded that wheeled vehicles had the capability to carry out the required tasks.
- 2.19 We would have expected a comprehensive analysis of this kind to be used later when the type and number of armoured vehicles to be acquired were being considered. We would also have expected to see a similar analysis of the other capabilities required to support the deployment of a modern fleet of wheeled vehicles. However, we found that no such analysis of support capability was undertaken. And the vehicle capability analysis was not used or referred to after being presented in December 1998.

## **Cabinet's Request to Accelerate the Purchase**

- 2.20 In November 1998, Cabinet had invited the Minister of Defence to investigate ways of accelerating Army's re-equipment plans – reflecting Cabinet's view that re-equipping Army was the top defence priority.
- 2.21 The Minister of Defence directed that consideration be given to making a joint purchase, with Australia, of a wheeled armoured vehicle known as *ASLAV*. This vehicle was manufactured by General Motors Defence (GMD) in Canada (as the *LAV II*) and shipped to Australia to be modified to suit Australian Army needs. A joint purchase with Australia was considered to have potential to accelerate the acquisition of the vehicles.
- 2.22 An evaluation team, comprising two MoD officials and four Army personnel, visited Australia in December 1998. The purpose of the visit was to determine whether the Australian modified vehicles would be suitable for New Zealand and, if so, to purchase them direct from the manufacturer. The project team also visited GMD in Canada in February 1999. A technical assessment was prepared which concluded that the *ASLAV* would not be able to meet the needs of the New Zealand Army.
- 2.23 The Australian Army's prime use of the *ASLAV* is as a reconnaissance vehicle, which is manufactured by modifying the *LAV II* (an 8-wheeled vehicle that has the capability to "swim") so that the *ASLAV* is able to cross rivers and swamps. Weight restrictions mean that the *LAV II* vehicle, which was developed 20 years ago and is now at the end of its development life, cannot be fitted with additional armour to provide the level of ballistic protection required if its prime use is to transport infantry to and from a battlefield. This is the main New Zealand Army requirement. For this reason, the *ASLAV* was not considered suitable for New Zealand's needs.

## Advice to the Minister of Defence

2.24 In March 1999, the Secretary of Defence (in a memo to the Minister of Defence) advised the Minister of the appropriate purchasing strategy for the acquisition of the light armoured vehicles. The memo advised that:

- purchase of the Australian variant of the light armoured vehicle was not suitable for New Zealand; and
- a new generation Canadian variant, the LAV III, was a much better match for New Zealand's needs.

2.25 The memo also informed the Minister that an open tender process was the most effective way of obtaining the vehicles, as it was believed that a variety of such vehicles (suitable for New Zealand's needs) were available on the world market. The memo noted that:

*A competitive tender is the normal and preferred acquisition strategy. It ensures that you have the widest possible exposure of the market and [are] thus in a position to obtain the product that is the most suitable match for your specified requirement. ... Another significant advantage is the leverage the process provides to the buyer to obtain the best possible price.*

2.26 The memo noted that a minimum of 83 infantry mobility and fire support vehicles would be needed, and that these could cost up to \$212 million (excluding GST). We understand that the sum of \$212 million was taken to be a constraint on expenditure at that time, and the number of vehicles to be acquired was derived by applying this funding ceiling.

2.27 The Minister was advised that, if a tender process were followed, project milestones would be:

- 30 April 1999 – subject to Cabinet approval, tender documents released;
- 25 June 1999 – deadline for submission of tenders;
- 20 August 1999 – complete tender evaluation;
- 19 October 1999 – complete due diligence for selected contractor and seek Cabinet approval to commit funds; and
- December 2000 to July 2001 – vehicle delivery.

2.28 Although this is a very specific timetable, we could find no evidence of any attempt to keep to it – and it was not carried forward into any subsequent Cabinet papers. MoD staff we interviewed were not aware of this timetable and believed that, in any case, it was unrealistic.

## Further Cabinet Approval

- 2.29 In May 1999, a paper to Cabinet sought approval for a move to a “motorised” Army. The issue of motorisation versus non-motorisation is linked to, but not the same as, the “wheels versus tracks” debate.
- 2.30 In a non-motorised Army, the main method of moving infantry is by foot. In situations where infantry need to be moved in areas exposing them to high risk, they are transported in armoured personnel carriers (the M113A1s). However, there were only enough of these vehicles to move a quarter of a battalion at a time.
- 2.31 A motorised Army requires more vehicle capacity to allow vehicles to provide the main method of moving infantry more rapidly. A change to motorisation also has substantial implications for soldier training – irrespective of the level of sophistication of the vehicles acquired – because the change in speed of movement requires an entirely different level of operating.
- 2.32 Cabinet approved the proposal for motorisation based on wheeled vehicles as the most suitable vehicle type to support this change. By then 14 months had elapsed since the Cabinet approval in principle that had been based on continuing with tracked vehicles. As suggested earlier, we consider that fundamental reviews such as the motorisation review should have been concluded before the original Cabinet approval was sought. We also note that the vehicle capability analysis undertaken by MoD’s Policy and Planning Division in December 1998 (paragraphs 2.18 and 2.19) was not used or referred to as part of the consideration of motorisation.
- 2.33 Cabinet considered a range of volume options for the purchase of wheeled vehicles, including:
- sufficient vehicles to equip two battalions – requiring a total of 151 vehicles; 127 infantry mobility vehicles; and 24 fire support vehicles – at an estimated cost of \$408 million (excluding GST); and
  - acquisition of the 151 vehicles in two “tranches” – by purchasing sufficient vehicles in the first tranche to equip one battalion and one company, with the remaining vehicles being purchased at a later date.
- 2.34 Cabinet favoured neither of these options but approved:
- an increase in the number of fire support vehicles from 12 to 24, and the purchase of sufficient infantry mobility vehicles to fully equip one battalion group plus an additional company lift of infantry mobility vehicles for the second battalion – the precise number of vehicles was not specified; and
  - an increase in funding from \$180 million (including GST) to \$212 million (excluding GST).

## New Force Development Proposal

- 2.35 In late-May 1999, after the Cabinet approval, a new Force Development Proposal for the light armoured vehicles was completed.
- 2.36 The 1999 Force Development Proposal described the capabilities of the vehicles being sought in terms of mobility, firepower, and the required level of protection from ballistics and mines. It estimated that the \$212 million approved by Cabinet would buy 24 fire support vehicles and 60 infantry mobility vehicles, plus ammunition, armour, training equipment and the infrastructure needed to support the vehicles. On the basis of these figures, the estimated average vehicle cost would be \$2.5million (including ammunition etc).
- 2.37 The Force Development Proposal also included 12 pages of “outline user specifications”. These specifications identified the “essential” criteria that the vehicle must meet, and the “desirable” criteria.

## Vehicle Specifications

- 2.38 After the Force Development Proposal was approved, the MoD’s Acquisitions Division used the capability description in the Proposal as the basis for the detailed vehicle specifications that were included in the tender document. The development of vehicle specifications was an area of tension between Army, the NZDF and the Acquisitions Division.
- 2.39 The NZDF told us that it tried for some time to get Army to articulate the doctrine within which the vehicles would be used and which would allow Acquisitions Division to develop a set of *output specifications*. (These are specifications that describe the situations that the vehicle must be able to cope with – for example, the ability to traverse certain types of terrain at specified speeds.) Output specifications were favoured as they allow manufacturers to review the specifications and decide if they have a vehicle that is capable of meeting them.
- 2.40 The other type of specification is an *input specification*, which describes specific vehicle characteristics. (For example, an input specification might specify a minimum ground clearance that the vehicle must have – as opposed to an output specification described in the previous paragraph.)
- 2.41 Our understanding is that the MoD and the NZDF were opposed to input specifications as there is a tendency for such specifications to describe a particular vehicle, and hence limit the number of manufacturers that might be interested in tendering their vehicles.
- 2.42 Our understanding of Army’s perspective is that it was not possible to draw up detailed specifications without using, as a basis, some specifications derived from existing vehicles. Army considered that the NZDF’s approach was based on experience of replacing like with like, and that this acquisition implied a capability change that required a different approach.

- 2.43 Army also told us that it was not opposed to output specifications and would prefer to see tender documents developed this way. However, Army noted that (though the specifications were written by a project team that included technically qualified personnel seconded from Army) the project team was not responsible to Army, but was under the control of the MoD's Acquisitions Division. In addition, Army said that it could find no communication between Army, the MoD and the NZDF about the relative merits of input and output specifications.
- 2.44 In the NZDF's view, there was no clearly established doctrine for the vehicle type that Army wanted and, without this, output specifications could not be developed. In Army's view, it does have an established doctrine.
- 2.45 Our understanding is that "doctrine" is a set of principles describing how equipment (a capability) is to be used to support approved military objectives. In this sense, Army has doctrine governing the use of a fleet of wheeled armoured vehicles – as articulated in its motorisation policy approved by Cabinet in 1999 and in the Force Development Proposal. The Force Development Proposal contains a set of user requirements that, in our view, could have been translated into output specifications.
- 2.46 Army has yet to develop a manual of tactics, techniques and procedures for the operation of these vehicles in a battlefield situation. Since confirmation of the purchase of the *LAV III*, Army has obtained the Canadian Army equivalent manual and is using this as a base document for the development of tactics for New Zealand Army operations and its operations with allied forces.
- 2.47 In our view, the absence of a manual of tactics, techniques and procedures for operation of the vehicles in a battlefield situation would not have been an impediment to the development of output specifications for the tender stage. However, in the event, a detailed set of output specifications was not achieved and input specifications were included in the light armoured vehicle tender.
- 2.48 Throughout the process of developing the vehicle specifications, there was a high level of misunderstanding and mistrust between the parties which, in our view, caused delays and ultimately added to the cost of this acquisition.



## **3 – Making the Acquisition of the Light Armoured Vehicles**

- 3.1 In this part of the report we describe and comment on the implementation of the acquisition of the light armoured vehicles. The timeline for the acquisition of the light armoured vehicles is set out in the Appendix on page 64.

### **Registration of Interest**

- 3.2 In June 1999, the MoD issued a request for registration of interest to over 70 potential suppliers, informing them that a tender for the supply of armoured vehicles was to be arranged. The request listed the essential criteria that the vehicles had to be able to meet. There were 16 responses.

### **Review of the Tender Specifications**

- 3.3 The tender process had effectively started with the registration of interest in June 1999. Nevertheless, in the same month the MoD's Acquisitions Division decided that the specifications that had been developed for the tender documents should be independently reviewed to ensure that there was a competitive process.
- 3.4 HVR Consulting Services, a United Kingdom company, was engaged in June 1999 to undertake a task described as independent verification and validation of the specifications. The MoD has an approved list of five consultancy firms that it can use for such work. Most of these companies are based in either Australia or New Zealand. We expected to find documentation explaining why HVR was selected in preference to the Australia or New Zealand based consultants. We could not locate any such documentation.
- 3.5 Concerns were raised much later about whether HVR had a commercial conflict of interest in working for the MoD. We investigated this issue and found that there was no commercial conflict of interest. However, there was no documentation on the MoD files to indicate how the MoD had concluded that there was no conflict of interest.
- 3.6 HVR's report (received in early July 1999) concluded, on an initial examination, that the detailed specifications were possibly based on an existing vehicle, the LAV III. If the MoD was to proceed with the tender, HVR recommended a number of changes in order to make the specifications more "generic" – so that a variety of vehicles could meet the requirements specified in the tender documents. These recommended changes were made.
- 3.7 However, the most important recommendation in HVR's report was that the MoD should not go to tender – the LAV III vehicle was so far ahead of the competition that HVR recommended that the MoD should consider direct purchase, rather than conducting a tender.

3.8 HVR had reviewed 17 vehicles (representing the vehicles nominated by the 16 suppliers that had responded to the request for registration of interest) against a small number (10) of the key “essential” criteria that were driving the overall configuration of the armoured vehicle. These criteria included the need for the vehicle to:

- have “growth” potential – that is, for the vehicle to be at the start of its development life and not at the end, as Army would be using it for 25 years;
- be air-transportable by a Hercules C130;
- meet legal requirements to be driven on New Zealand roads; and
- carry a certain number of troops.

3.9 HVR concluded that there was only one vehicle on the world market that could meet these essential requirements – the Canadian LAV III. A second vehicle came close to meeting the requirements, but it had almost reached the end of its development life.

3.10 HVR summarised the situation as follows:

*The configuration of armoured vehicles required by many countries of the world today tend to be wheeled (to facilitate self-deployment), large and multi-role capable, yet must often be C130 aircraft transportable. There is great market demand, yet very few military vehicle products are optimised for this niche. The New Zealand Army requirement fits this pattern.*

3.11 HVR then described how, because the LAV III was such a superior vehicle, it would be difficult to generate a competitive tender. HVR concluded that:

*The LAV III, as Prime Equipment, is technically way ahead of the competition. Assurances on Price and Support Packages are needed. New Zealand should solicit the assistance of the Canadian Government in negotiating a best value extension of the current Canadian Army order placed upon GM, in conjunction with a separately negotiated contract for support.*

3.12 HVR suggested that, if a tender was to proceed, increased competition could be generated by removing the requirement for the vehicles to be air-transportable by aircraft C130. This would allow bids from two other vehicles, and potentially as many as four could meet New Zealand’s requirements.

- 3.13 HVR further suggested that the vehicles might be purchased in two tranches, allowing Army to:
- gain experience using the vehicles in the first tranche;
  - review technology enhancements before purchasing the second tranche; and
  - take account of changes in operational requirements before acquiring the full number of vehicles.

## The Decision to Tender

- 3.14 HVR had been asked by the MoD to review the vehicle specifications and to look at the tender process. HVR concluded that, while there were other possible contenders, the LAV III was such a technically superior vehicle that there was little point in running a tender. HVR recommended that New Zealand should purchase the vehicles direct from the manufacturer.
- 3.15 HVR's recommendation to proceed with a direct purchase was reviewed by the Acquisitions Division. The Minister had previously been asked to note a decision to proceed with an open tender. The MoD considered that this approach should not be overridden and that the Treasury had supported this decision. We found no documentary evidence that HVR's recommendation to purchase directly was reviewed outside Acquisitions Division, but we understand that:
- Acquisitions Division did discuss it with the NZDF's Development Branch; and
  - it was discussed in the joint meetings of the Chief of Defence Force and the Secretary of Defence.
- 3.16 The MoD decided that the tender should proceed because it believed that:
- there were other vehicles available on the market that would satisfy New Zealand's needs at a lower cost than the LAV III;
  - the Government should be presented with a range of cost/capability options, and a tender would help to provide those options;
  - it would be difficult to persuade the Treasury or the Government that a direct purchase option could achieve a best value price from the manufacturer;
  - going the "sole source" route would not provide the necessary purchasing and price leverage; and

- the Force Development Proposal had provided no operational imperative to justify a sole source purchase.

3.17 However, in our view a number of factors favoured proceeding with the direct purchase of the LAV III:

- Procedures identified by HVR that would have involved entering into an agreement with the Canadian Government were intended to ensure that New Zealand paid the same price for these vehicles as the Canadian Government. This would have helped prevent the manufacturer from charging an excessive price through a direct purchase arrangement. We also note that, in the event, only one other vehicle was subsequently presented, and we saw no evidence that the tender produced any price leverage.
- A direct purchase arrangement would have enabled earlier acquisition of the vehicles.
- The falling New Zealand dollar and military inflation suggested that the longer the purchase was delayed the more expensive the vehicles were likely to become.

3.18 We found no documentary evidence that these factors were taken into account in reassessing the need to go to tender. There was no formal assessment of the pros and cons of conducting a tender against the direct purchase option recommended by HVR.

## Issue of the Tender Documents

3.19 The Request For Tender documents were issued to seven companies in August 1999. HVR had suggested that, if the MoD did proceed with a tender, one way of ensuring more bids would be to remove the requirement that the vehicle must be able to fit into a C130 aircraft. This would allow other vehicles to be tendered.

3.20 Acquisitions Division decided to change the C130 requirement from “essential” to “desirable” in the tender specifications. Although Army and the NZDF had seen this as an essential requirement, the change from essential to desirable was taken without prior consultation with Army.

3.21 In our view it is surprising, and unacceptable, that a specification deemed essential can be changed in such an arbitrary way. Purchase of a vehicle that was not air-transportable by C130 might also have breached the deployment requirements in the Purchase Agreement between the Minister and the NZDF.

3.22 In our view, the handling of air-transportability by C130 illustrates the difficulties that can arise where a key capability has not been clearly defined. “Air-transportable by C130” can be defined in a number of different ways, taking account of factors such as cargo door clearance requirements, allowance for weight adjustments (e.g. by removing equipment from the armoured

vehicle and carrying it on a second flight), travel distance, and the state of the landing area.

- 3.23 It is also unclear whether the C130 requirement was a tactical requirement or a logistical one.<sup>5</sup> Uncertainty about the definitions around these factors meant that whether a particular vehicle fell within or outside the project requirements was also uncertain.

## The Tender Process

- 3.24 Initially, it seemed that the tender might produce a bid in respect of only one vehicle – the LAV III, manufactured by GMD.

- 3.25 The New Zealand agent for Henschel Wehrtechnik of Germany, which manufactures a six-wheeled infantry mobility vehicle known as the *Fuchs*, wrote to the MoD in early October 1999, stating that:

*A careful examination of the User Requirement shows that the LAV III vehicle is the only vehicle that meets all the essential criteria. Therefore, we must ask why any other vehicle manufacturers were issued with tender documents?*

- 3.26 This letter also expressed concern that the rules of the tender meant that failure to meet any of the essential criteria would disqualify the tender.

- 3.27 Another manufacturer also wrote alleging that the LAV III vehicle seemed to be the only vehicle that could meet the essential requirements in the tender document.

- 3.28 To answer any other questions about the tender, in October 1999 the MoD held a tenderers' conference to explain the tender requirements in more detail.

- 3.29 We can find no mention in the documents sent to tenderers that there was to be a tenderers' conference, and assume there that it was not originally envisaged one would be held. Representatives from three companies attended the conference.

- 3.30 It was agreed at the conference that a system of waivers would be introduced. This system, which was developed using legal advice, allowed tenderers that could not meet essential criteria as stated in the tender documents to apply for a "waiver" from these essential requirements. Any waiver granted had to be recommended by the Project Engineer to the Project Manager and submitted to the Project Director for approval.

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<sup>5</sup> With a *tactical* requirement the aircraft is an integral part of an operation; a *logistical* requirement refers to transporting supplies.

3.31 The waiver system allowing departures from essential criteria was a new arrangement, not envisaged at the start of the tender process, and therefore not known by potential tenderers at that point. The MoD considered that, whatever reasons other companies had for not bidding, it was not because they could not meet the essential criteria, and that the addition of the waivers did not create any difficulty. However, this is not correct. At least one company told the MoD, before it knew of the waiver system, that it had decided not to bid because its vehicle could not meet the essential criteria. This company stated, in late September 1999, that:

*Since the performance designated as essential in the Request for Tender is rated so important that failure to meet any of the essential requirements invalidate the tender, [we have] decided not to participate in the tender.*

3.32 The outcome of the waiver process was that the two manufacturers that had submitted bids recognised that they could not meet all the requirements and sought waivers. Ten waivers were granted in respect of the Fuchs and 11 waivers were granted in respect of the LAV III.

## **Consideration of the Tenders**

3.33 Tenders closed in December 1999, with tenders received for two vehicles – the LAV III and the Fuchs.

3.34 The MoD has a comprehensive and impartial method for assessing tenders. This checks compliance with the essential and desirable requirements listed in the tender document. Weightings are attached to the criteria.

3.35 The outcome of the evaluation of the tenders was that neither of the two vehicles technically complied with all the requirements of the tender specifications. For the LAV III, the areas of non-compliance were assessed as being minor. In comparison, the Fuchs was assessed as having significant shortfalls against New Zealand's requirements.

3.36 MoD's rule that tenders must comply with all the essential requirements was at this stage potentially an obstacle to acceptance of the LAV III tender. The MoD sought legal advice that stated that the companies' responses to the Request for Tender in effect created a "collateral contract" between the MoD and a tenderer, in which the MoD agrees to follow the rules of its own tender process. However, the legal advice also suggested that, provided the MoD treated all bids in a consistent manner, there would be no breach of the collateral contract. Therefore, even though there were no fully compliant bids, the MoD could choose to negotiate further in relation to the LAV III vehicle – being the vehicle that most closely matched the specified requirements.

## Off-the-shelf Purchase

- 3.37 As mentioned earlier, the underlying philosophy of military vehicle purchasing is to buy “off-the-shelf”. This is intended to save money as few, if any, modifications should be required.
- 3.38 An evaluation team had visited GMD in Canada in February 1999 and viewed the LAV III (paragraph 2.22). While the team would have known that the LAV III was only built with a turret and 25mm cannon, it believed that savings could be made if the turret was removed – apparently because the turret was assessed as costing approximately one-third of the overall costs of the vehicle. However, we found no evidence that this assumption had been tested – for example, by assessing the full re-engineering costs of turret removal.
- 3.39 As the aim was to purchase off-the-shelf, in our view there should have been more detailed consideration of whether tenderers should have to engage in major re-engineering of their vehicles. As a consequence of such a review, the original tender document could have allowed tenderers to submit bids in respect of dual-purpose vehicles, able to carry troops as well as being equipped with the cannon turret in place. Indeed, the memo to the Minister of March 1999 (paragraph 2.24) ought to have recognised that there was a dual-purpose fire support and troop-carrying vehicle now available that could meet Army needs.
- 3.40 The tender specifications had been specific on the configuration of vehicles being tendered for. The tender documents had called for tenderers to bid on two options:
- Option One* 24 fire support vehicles (that is, armoured vehicles equipped with a cannon), and 78 infantry mobility vehicles to carry infantry or to carry out other tasks.
- Option Two* 26 fire support vehicles and 126 infantry mobility vehicles.
- 3.41 Option One was intended to provide sufficient vehicles for one battalion. Option Two would provide enough vehicles for two battalions. The tender was thus for two main vehicle types – a fire support vehicle and an infantry mobility vehicle.
- 3.42 In the course of evaluating the tenders, the MoD found that the LAV III was more expensive if manufactured without the cannon turret in place. Major re-engineering would be involved to build these vehicles without the turret to meet the tender requirements of having separate fire support and infantry mobility vehicles. The MoD project team (in discussion with GMD) also found that, because all the LAV III vehicles were in effect fire support vehicles, the total requirement to equip two battalions fell from 152 vehicles to 105 vehicles. The MoD then entered into discussions with GMD to buy 105 vehicles and fully equip two battalions.

## Approved Costs

- 3.43 In May 1999, Cabinet had approved funding of \$212 million to purchase 24 fire support vehicles and sufficient infantry mobility vehicles to equip one battalion group plus an additional company lift of infantry mobility vehicles for the second battalion.
- 3.44 The May 1999 Force Development Proposal indicated that a minimum of 84 fire support vehicles and infantry mobility vehicles would be required. The Cabinet approval had not specified the actual number of infantry mobility vehicles to be purchased. Cabinet had also considered, but had not approved, an option of purchasing enough vehicles (151) to equip two battalions at a cost of \$408 million.
- 3.45 Assuming an average vehicle cost (from MoD estimates) of \$2.5 million a vehicle, then the minimum cost of tender Option One (involving the purchase of 102 vehicles – see paragraph 3.40) would have been at least \$255 million – that is, \$43 million more than the Cabinet approval.
- 3.46 The tender document also asked for bids on sufficient vehicles (152)<sup>6</sup> to equip two battalions. We do not believe that the MoD had Cabinet authority to seek bids on such an option. Cabinet had considered – and rejected – an option of equipping two battalions, either in the present or in the future. The MoD had been told that it could have a maximum of \$212 million for this purchase. In these circumstances, we believe that the MoD should either have gone back formally to the Government indicating the likely number of vehicles this amount could buy, or scaled back the number of vehicles being sought.

## Further Cabinet Approval

- 3.47 During 2000, the new Government reviewed defence priorities and concluded that the light armoured vehicle acquisition was a high priority purchase. In June 2000, the Secretary of Defence, as part of a briefing to the Minister of Defence on defence acquisition priorities, advised that the tender process for light armoured vehicles had identified the LAV III as the best option for Army. Because the LAV III combined the role of infantry mobility vehicle and fire support vehicle, purchase of 105 LAV IIIs would provide sufficient vehicles to equip two battalions.
- 3.48 However, the Secretary of Defence's briefing noted that the purchase of this number of vehicles would significantly exceed the \$212 million budget ceiling approved by the previous Government. It also suggested that investments in Army should, as far as practicable, be phased in progressively, because of an ongoing land force capability review.

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<sup>6</sup> An option put to Cabinet was for 151 vehicles. The tender option was for 152 vehicles.



- 3.49 The Secretary of Defence advised the Minister that it would be sensible to acquire the vehicles in tranches, and suggested two possibilities:
- purchase 35 LAV IIIs, which could probably be achieved within \$212 million; or
  - purchase 55 LAV IIIs for a probable cost of \$337 million. (It was noted that this number of vehicles was twice the number of armoured personnel carriers sent to East Timor and would be sufficient for one battalion.) The suggestion implied that the MoD believed that the purchase of 55 vehicles would be sufficient to meet Army's immediate needs, and that further vehicles could be acquired in subsequent purchase.
- 3.50 These suggestions were not considered sufficient, and the Secretary of Defence was instructed to prepare a draft Cabinet paper with a more complete set of options.
- 3.51 In July 2000, the MoD produced a draft Cabinet paper that contained three options, and concluded with:
- the recommendation *of Army* to purchase 105 light armoured vehicles for delivery over a five-year period; and
  - the recommendation *of the MoD* (with which the NZDF concurred) to purchase 55 light armoured vehicles with an option of 50 further vehicles – the purchase decision on these latter vehicles would depend upon the outcome of the land force capability review that had been commissioned under the Government's Defence Policy Framework.
- 3.52 These recommendations were in conflict. The draft Cabinet paper set them out as alternative options, together with a third option to purchase 75 light armoured vehicles (delivered over a three to four-year period) with the option of 30 more later.
- 3.53 At this point, the Minister requested a briefing from the Chief of Defence Force, who directed Army to prepare and deliver the briefing. On 1 August 2000, the Chief of General Staff provided the briefing to the Minister. The briefing informed the Minister of the implications of purchasing 105 vehicles together; purchasing 75 now and 30 at a later date; and purchasing 55 now and 50 later.
- 3.54 Also during August 2000, the MoD discussed the draft Cabinet paper with the NZDF and Army, and Army took strong exception to aspects of evidence and argumentation presented in the paper. For example, in a memo to the NZDF dated 8 August 2000, Army objected to a section in the MoD's paper that suggested a combined fleet of tracked and wheeled vehicles might be a more flexible and less expensive option than a fleet of all-wheeled vehicles. Army considered the case for a combined fleet to be untested and, in any event, more suited to a larger army. It pointed out that a combined fleet was outside the May 1999 Force Development Proposal that had made the case for an all-wheeled fleet.

- 3.55 Army also commented to us that purchasing 50 vehicles – representing half a capability – and the rest at some unspecified time in the future – made no sense, and that it would in any case have effectively meant ... *50 now and the rest never.*
- 3.56 On 9 August 2000 – at a meeting between the Minister of Defence, the Secretary of Defence and the Chief of Defence Force – we understand that the Minister provided specific guidance on the range of options to be included in the paper that he would take to Cabinet.
- 3.57 This Cabinet paper was prepared later in August 2000. It contained the following four options:
- to purchase 55 vehicles – to be delivered over a three-year period, with an option of purchasing a further 50 vehicles later;
  - to purchase 75 vehicles – to be delivered over a three to four-year period, with an option of purchasing a further 30 vehicles later;
  - to purchase 105 vehicles to be delivered over a five-year period; or
  - to redefine the requirements of the project.
- 3.58 These four options centred on obtaining 105 replacement light armoured vehicles and the paper noted that:
- ...clearly the purchase of 105 vehicles now, at a cost of \$611.764 million is the cheapest way of obtaining this capability.*
- 3.59 The Treasury’s review of the paper explained the need to purchase 105 vehicles as follows:
- The number of vehicles is predicated on being able to deploy and sustain a three-company battalion group in a theatre of operations for up to 12 months duration. If 105 vehicles were purchased, then NZDF would be able to deploy one three-company battalion offshore for six months, while a further similar battalion remains under training in New Zealand. Having a second battalion under training in New Zealand means that a fully trained equivalent unit can replace the Army battalion that is deployed offshore. This involves a significant deepening of the Army’s current capability. In order to fully achieve the Government’s policy as outlined in the Purchase Agreement of maintaining one battalion overseas and to sustain it for a year, 105 vehicles are required.*
- 3.60 Cabinet decided that 105 LAV III vehicles, sufficient to equip two battalions, should be purchased. In September 2000, the Cabinet Policy Committee approved the (updated) expenditure of \$646 million for the purchase of 105 LAV III vehicles (GST inclusive).

- 3.61 Cabinet delegated to the Minister of Finance and the Minister of Defence the authority to sign a contract with GMD for the supply of the vehicles.
- 3.62 The paper seeking the approval of the joint Ministers estimated the annual operating cost associated with these vehicles at \$39 million a year (including depreciation of almost \$30 million a year) over the life of the vehicles. There is some doubt over the accuracy of this figure. Treasury commented on the paper to joint Ministers and, in relation to the operating costs, noted that:
- Our understanding is that these figures are not supported by an in-depth study and therefore questions remain as to the robustness of these figures.*
- 3.63 Treasury had commented in an earlier paper to Cabinet that, although this project had been a high priority for successive Governments for several years, the final stages of the acquisition had been rushed and Treasury had not been able to fully scrutinise the operating costs.
- 3.64 The joint Ministers approved the recommendation to sign a contract with GMD on 25 January 2001.

## **Management of the Contract with General Motors**

- 3.65 The MoD Tenders Review Board, comprising staff from the MoD and the NZDF, decided in February 2000 to accept the bid in respect of the LAV III, subject to Cabinet approval. In early April 2000, the MoD visited Canada as part of its due diligence work.
- 3.66 When manufacture of the light armoured vehicles begins, the MoD intends to base two staff (one from Army and one from the MoD) at the factory in Canada for two years. The budgeted cost for this is \$1.7 million, excluding salaries. One purpose of basing staff at the factory will be as part of a quality control process and to deal with any disputes over contract clauses. Another purpose is to gain detailed knowledge of the vehicles.
- 3.67 In terms of quality control, a Canadian Government agency has offered to undertake quality control work at no cost to the New Zealand Government, and the MoD is considering this offer.
- 3.68 During the tender, another Canadian Government agency, the Canadian Commercial Corporation (the Corporation) submitted a tender to manage the LAV III project. This would include carrying out due diligence and confirming the fairness of the price offered.
- 3.69 The Corporation has a detailed knowledge of GMD's costing and pricing arrangements, including access to all costing details. It acts on behalf of the US Government and the Australian Government for vehicle purchases from GMD and manages all aspects of these contracts.

- 3.70 At one stage, the MoD clearly envisaged that the Corporation would act as project manager for the purchase of the LAV III. For example, a paper to the Cabinet Policy Committee in August 2000 described the Corporation as “the preferred contractor”. However, in September 2000, the MoD Tenders Review Board declined the Corporation tender to manage the LAV III contract on grounds that the MoD has a fixed price contract and will not need an agency such as the Corporation to manage contract details. In the Board’s view, New Zealand is requiring minimal changes to the vehicles. Should there be issues of contract interpretation, the MoD representative at the factory will handle them, referring back to New Zealand and to MoD legal advisers as necessary.
- 3.71 When declining the Corporation’s tender, the MoD did not compare the costs of carrying out the contract management tasks itself (including salary costs and possible legal costs arising from any disputes over the contract) with the cost tendered by the Corporation.
- 3.72 In our view, the MoD needs to review whether it might still be useful, and cost-effective, to employ the Corporation in a project management role. The Corporation has a detailed knowledge and experience of GMD to a level that could not be replicated by the MoD. The cost of using the Corporation might now be considerably less than the price quoted in its tender – the vehicle contract has been signed and there is now no need for the Corporation to undertake due diligence and other work associated with establishing the contract.
- 3.73 Since we began our investigations, the MoD has set in train a review of its arrangements for the management of the contract, and has started discussions with the Corporation about the possibility of employing it in a project management role.

## Foreign Exchange Cover

- 3.74 The responsibility for providing foreign exchange cover over military equipment purchases lies with the MoD. The rules for the provision of foreign exchange are covered by an MoD policy statement *Ministry of Defence: Foreign Exchange Covering Policy*, dated 9 August 1993. This policy was jointly approved by the Minister of Finance and the Minister of Defence and was formulated in accordance with a Treasury guideline released in 1990.
- 3.75 The policy states that a transaction exposure will be recognised by the MoD *...at the time a contract is entered into. A contract is defined as ...both formal written contracts and informal, unwritten commitments which the supplier has accepted.*
- 3.76 We have been told that the MoD policy is interpreted to apply after a ‘signed contract’ is in place. The MoD also requires information on projected cash flows. Once these elements are in place, the MoD enters into foreign exchange cover to hedge the New Zealand dollar against foreign exchange fluctuations.

- 3.77 The Treasury's Debt Management Office advised us that departments can hedge foreign exchange movement before a contract is signed, provided Ministerial approval has been granted for the potential exposure. The department takes the decision on the amount and timing of the cover in accordance with its policy.
- 3.78 We noted that, at a Cabinet meeting on 20 September 2000, a decision was taken agreeing:
- ... that the normal Ministry of Defence practice of not hedging until contracts are signed will not apply in this case.*
- 3.79 The light armoured vehicle contract exposures are against both the Canadian and United States dollars. Both are regarded as major overseas currencies.
- 3.80 The New Zealand dollar has been in effective decline against major overseas currencies since late-1997. Given this decline, delays in obtaining cover may increase the amount of the New Zealand dollar cost of overseas purchases. This, however, must be balanced against the need for certainty that the contracted commitment will actually take place, since foreign exchange cover has a significant cost attached to it.
- 3.81 The MoD's interpretation of a 'signed' contract seems at odds with its own policy which allows for cover to be provided for:
- ... informal, unwritten commitments which the supplier has accepted.*
- 3.82 We understand that by early 2000 discussions on the price to be paid for the LAV III were largely complete. Discussions were still taking place over contract warranties, but the final price for each vehicle was subject to a high degree of certainty. There was still uncertainty over the number of vehicles to be purchased, but it was almost certain that there would be an acquisition of the LAV III – possibly enough certainty to warrant an approach to Treasury to obtain some foreign exchange cover.
- 3.83 During the time between early 2000 and the Cabinet agreeing in September 2000 to the variation of the Ministry's conservative interpretation of its policy (Cabinet agreement was required to effect the change), the New Zealand dollar value of the whole contract increased by over \$60 million.

## **Army's Maintenance Capability**

- 3.84 The May 1999 Force Development Proposal for the light armoured vehicles noted that:
- The current establishment of armourers, electronic technicians and ammunition technicians is sufficient to cater for maintenance and repair of infantry mobility vehicles and fire support vehicles, but may need to be supplemented by additional tradesmen to maintain the fire control systems in the fire support vehicles.*

- 3.85 This assessment was made before the purchase of the LAV III vehicle. The LAV III is technically highly sophisticated, and well in advance of other vehicles operated by Army. Most of the advanced technology is within the turret, which contains a sophisticated all electric drive system, a thermal imaging system, laser range finder, and laser warning receiver.
- 3.86 The July 1999 report by HVR also drew attention to the skills that would be needed to maintain a modern fleet of light armoured vehicles. This report noted, in respect of trades such as software, optronics and communications, that it was proving difficult to train and then retain the skills base. It was also noted that there was a need to define the new skills that would be required.
- 3.87 These reports were made at a time when it was envisaged that no more than 24 vehicles equipped with turrets would be acquired. Army is now acquiring 105 vehicles, all with turrets – a situation not foreseen in 1999.
- 3.88 The NZDF expressed to us general concerns about Army’s approach to maintaining current equipment and to producing documentation for introducing new equipment – though Army has denied that these are valid concerns. Specifically in relation to the acquisition of the LAV III, the NZDF has expressed a concern that a significant risk to the project relates to the deficiency of skills within Army to maintain the vehicles. The NZDF commented to us that:
- Between the time Army first saw the turret and its requirements, to the point where it started to do something about planning for its maintenance, two and a half years passed. This was in spite of advice from NZDF, MoD, ... that the skill deficiency was a major impediment to the successful introduction into service and sustainment of the operational capability.*
- 3.89 This appears to us to be a serious situation, and we sought an Army perspective. The Army view is that the successful introduction into service of new equipment and sustainment of that equipment hinge on a process known as *maintenance evaluation*. A maintenance evaluation provides the base information to determine matters such as:
- the types of trades required to support the item of equipment;
  - the numbers of staff required in each trade; and
  - the requirements for special tools and equipment.
- 3.90 This kind of evaluation requires access to information held by the vehicle manufacturer. Army told us that it wished to collect information for the maintenance evaluation when the project team visited the Canadian manufacturer in April 2000. However, this was before Cabinet had approved the acquisition of the LAV III, and the primary purpose of the visit was to conduct due diligence of the manufacturer. The MoD Project Director had not allowed discussion of the maintenance evaluation on this visit.

3.91 On 12 February 2001, Army wrote to the MoD Project Director stating that:

*The MoD Acquisitions Division has previously accepted the maintenance evaluation process as part of the equipment acquisition. Army accepts that maintenance evaluations were not required to separate the bids during the tender evaluation phase of the armoured vehicle tenders. Nevertheless, the maintenance evaluation process remains as the only accepted methodology available to determine the full impact that the introduction of LAV will have on the Army in terms of planning appropriate maintenance support.*

*Further delay to the conduct of the maintenance evaluation severely increases the risk that inappropriate processes and resources are put in place to support the new capability. Of primary concern is the numerical adequacy and training of technicians to be put in place prior to the vehicle delivery in order for a competent level of technical support to be delivered. It is anticipated that there will be adjustments required to the trades of Electronics Technician and Vehicle Mechanic requiring actions as soon as possible.*

*Army requests that the maintenance evaluation process for the NZ LAV be initiated immediately.*

3.92 It is not the responsibility of the MoD's Project Director to approve the start of a maintenance evaluation. However, Army needed to contact the manufacturer in order to obtain information for the evaluation and believed it needed the approval of Acquisitions Division to do so. Later in this Report, we discuss sensitivities around contacts with manufacturers in relation to the light operational vehicle acquisition. Such sensitivities help explain Army's caution in making contact with the manufacturer of the LAV III.

3.93 In any event, Army received no reply to the February memo quoted above. We understand from the MoD that a joint MoD/Army team subsequently consulted with the contractors to put a programme in place to support the maintenance evaluation. The evaluation was started in June 2001. Army forecasts that it will have an initial completed evaluation, including 95 per cent of the information required, by December 2001. It plans to refine the evaluation during 2002, and to have it fully completed by December 2002. The first vehicles are planned to be delivered in September 2003.

3.94 While the maintenance evaluation is forecast to be completed before the arrival of the vehicles, there needs to be time to rectify any shortfall in capability identified by the maintenance evaluation, which may not become fully apparent until the evaluation is more advanced. We therefore consider that the maintenance evaluation should have been started much earlier.

3.95 In our view, the parties should have discussed the need for a maintenance evaluation in a sensible and timely way. We consider that the way in which the issue was handled illustrates the poor communication, misunderstanding, and mistrust that bedevilled this project.

3.96 We also consider that the maintenance evaluation should have been an integral part of the tender evaluation, and this should have been made clear to the tenderers. Army should have been allowed access to tenderers in order to collect the information needed for the maintenance evaluation.

## Sea and Air Transport Capability

3.97 The acquisition of the LAV III has implications for military transport capability.

3.98 A paper that went to the Cabinet just before the May 1999 Force Development Proposal outlined the implications of motorisation, and identified the capabilities to fully support two motorised battalions, as follows:

- *A military sealift ship* – that motorisation of two battalions would significantly increase the number of vehicles requiring deployment to a theatre of operations and that a strategic sealift capability would be required.
- *C130 tactical transport airlift* – that, in addition to the strategic transport tasks carried out by the fleet of C130s, motorisation would also mean that the aircraft would need to have the ability to:
  - re-supply a force from the air – the quantities of stores, ammunition and fuel required would have to increase to support a motorised force;
  - move reinforcements and replacement equipment into a tactical area; and
  - conduct tactical troop movement within an area of operations.

3.99 The Cabinet paper suggested that retention of a strategic and tactical airlift capability meant that the life of the current fleet of C130s would need to be extended.

3.100 The Cabinet paper also noted that a motorised force would require support from utility helicopters. The helicopters would be needed for the rapid movement of logistics re-supply, reconnaissance, command, and liaison tasks. To achieve this, the existing helicopters would need to be upgraded or replaced.

3.101 The Government has considered these issues in its recent review of the armed forces, the results of which were announced in May 2001.<sup>7</sup> In relation to the transport capabilities discussed above, the following decisions have been made:

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<sup>7</sup> Government Defence Statement, May 2001.



- HMNZS *Charles Upham*, which was intended to provide a strategic transport capability once it was upgraded, has been sold. The need for a strategic sealift capability will be met by chartering suitable vessels. The requirement for a tactical sealift capability is to be considered as part of a review of the composition of a maritime surface fleet.
- The C-130 fleet will be upgraded or replaced.
- Studies are under way to determine whether the current fleet of 14 utility helicopters should be upgraded or replaced.

## **4 – Our Views on the Light Armoured Vehicle Acquisition**

- 4.1 In our view, the purchase of the light armoured vehicles was not well managed. There are doubts about whether it was necessary to go to tender and about the conduct of the tender itself. Our assessment of the problems is outlined below.

### ***From the start, the project was poorly defined***

- 4.2 The project started out as an upgrade of the existing fleet of M113A1s. Cabinet approval was sought – and given – for this approach, even though a fundamental debate was in train about the nature of the vehicles most suitable to New Zealand’s needs – the “wheels versus tracks” debate. In our view, the debate should have been resolved before putting proposals to Cabinet. Not doing so caused confusion.
- 4.3 The nature of the purchase changed fundamentally at a very late stage – at tender evaluation – when it became clear that it would be more advantageous to purchase the LAV III as a combined fire support vehicle and troop carrier. The LAV III had been known to be a dual purpose vehicle. Even so, the project had continued to require separate fire support and infantry mobility vehicles, even though this could entail major re-engineering – which was contrary to the declared intention to buy “off the shelf”. A better defined project should have assessed the dual purpose option earlier, and included it in the tender documents.
- 4.4 Shortcomings in project definition arose, at least in part, from failings in the operation of the Defence Planning System. Though the System was first introduced in 1992, and substantially revised between 1996 and 1998, it has still not been fully implemented.

### ***The changing project definition also led to lack of clarity on the number of vehicles required***

- 4.5 Army originally had a fleet of 78 armoured personnel carriers and 26 fire support vehicles – a total of 104 vehicles. The first Force Development Proposal of May 1997 estimated that upgrading the M113s and acquiring new fire support vehicles would reduce the total number of vehicles required from 104 to 81, but the rationale for this reduction was unclear. The May 1999 Force Development Proposal proposed 151 vehicles (estimated to cost over \$400 million), to mobilise two battalions. Because of the funding cap of \$212 million, the Proposal suggested that 84 vehicles could be purchased. Again, the rationale for both of these options was not clear. The tender issued in 1999 was for two options – 102 vehicles or 152 vehicles.

- 4.6 Even as late as August 2000, just before the final Cabinet decision, there was disagreement over the acquisition strategy. To fully achieve the Government's policy of maintaining one battalion overseas and sustain it for a year, it was accepted that 105 vehicles were required. Army wanted all 105 vehicles to be acquired in one tranche. The MoD and the NZDF preferred a staged approach, with an initial purchase of 55 vehicles. However, the Cabinet paper that sought approval for the acquisition to go ahead contained no preferred option, nor an analysis of the cost/capability/ risk trade-offs with each option. The number finally to be purchased is 105 combined fire support and troop carrying vehicles in one tranche.

***The approach to research of the market for this purchase was, in our view, deficient***

- 4.7 Output-based specifications should be prepared to support military purchases – which should primarily reflect an objective requirement.
- 4.8 However, significant amounts of time and effort were spent writing detailed technical specifications of the vehicles. Army considers that it is only possible to write such specifications using knowledge of existing vehicles on the market. In our view it was questionable whether it was efficient and effective to try and describe the vehicle required in such detail. For purchases of this kind, which involve sophisticated defence technology, a thorough knowledge of available products is absolutely essential. In particular:
- The HVR review was a sensible step, but it should have been taken earlier, and certainly before the tender process was started.
  - The option of a dual-purpose fire support and troop carrying vehicle should have been recognised, researched, and considered for inclusion in the tender document.

***Use of essential criteria restricted the scope for competition***

- 4.9 Requiring tenders to meet all essential criteria, apparently leaving no scope for negotiation, deterred potential tenderers from bidding. A system of waivers had to be introduced later because no vehicle fully complied. In the event, only two tenders were submitted – other potential tenderers having earlier decided that they would not bid. We believe that having a requirement at the outset to meet so many essential criteria was inappropriate and unrealistic given the widely known fact that creating competition was going to be difficult.

## ***There was no strategic management of the project***

4.10 The relevant single service (in this case Army), the NZDF and the MoD's Acquisitions Division each operated (and considered themselves accountable for) independent project plans for their part of the procurement process. While there was an MoD project team that included seconded Army personnel, there was no overarching trilateral governance structure above the project team. In our view, this represents a failing in project governance. It led to poor communications between the parties and a perception on the Chief of General Staff's part that he was being excluded from the acquisition process. He commented to us that:

*I was accountable for the Army part of the acquisition process, but was never properly part of [the process].*

4.11 Where there is no overall project governance, we consider that there is a risk that no party will take responsibility for ensuring that overall project milestones are achieved. There is a need for a joint responsible body at a strategic level to:

- monitor the progress of an overall project plan;
- secure the transparent engagement of all the parties; and
- ensure that any obstacles that arise are promptly and appropriately dealt with.

## ***In at least two key instances, the MoD failed to consult appropriately***

4.12 So far as we can determine, the HVR recommendation to move to direct purchase of the LAV III and not to go to tender was not widely discussed, and was not shared with Army. In our view, it is unacceptable that such a key recommendation was not more widely considered and consulted upon. The expert's advice had been sought and paid for and deserved closer attention.

4.13 The Acquisitions Division also changed the requirement to be C130 transportable from "essential" to "desirable" without consulting Army. This arbitrary change to a specification that had been deemed essential was, in our view, unacceptable.

## ***Relationships between the MoD, the NZDF, and Army were dysfunctional***

4.14 Our understanding of the MoD and the NZDF perspective is that they considered that Army did not understand how long it takes to acquire military equipment. For example, in their view Army did not appreciate how long it

takes to obtain Cabinet approvals, or the need to carefully check all expenditure proposals.

- 4.15 The MoD and the NZDF told us that they believed that Army takes a pre-determined view of the type of vehicle that it wants, and tries to ensure that only this vehicle is purchased. If this were so, it would risk undermining the impartiality of the purchase process.
- 4.16 The NZDF also suggested to us that the lack of a logical output-based capability analysis by Army caused difficulty for the other Services. It considered that they had no information on how Army intends to use the vehicles, and that they were therefore unable to plan the capability they needed to support the vehicles' deployment.
- 4.17 Our understanding of *Army's perspective* is that it believes that the NZDF does not understand Army needs. Army is also sceptical of what it sees as an NZDF preference to equip the other two Services. Army emphasised that the MoD, not Army, is responsible for the acquisition of military equipment, and that Army finds it difficult to conceive how it could enforce a predetermined view of a type of vehicle even if it wanted to.
- 4.18 We formed the view that mistrust between the parties was partly responsible for the poor handling of this purchase. It may help explain why key issues – such as the HVR recommendation not to go to tender – were not openly discussed.
- 4.19 We are concerned that, in considering the July 2000 draft Cabinet paper, the MoD, the NZDF and Army were unable to agree on the recommendations that the Minister should take to Cabinet. This further illustrates the confusion and dysfunctional relationships that existed.

### ***Pursuit of the project diverged considerably from Cabinet approvals in a number of respects***

- 4.20 The original March 1998 Cabinet decision approved in principle the acquisition of armoured vehicles, based on an upgrade of the armoured personnel carriers and the purchase of new fire support vehicles. Expenditure in relation to the tendering process was also approved.
- 4.21 There was a clear expectation that the parties would proceed with the acquisition. However, work that was already underway to review equipment requirements was instead continued. And this formed the basis of a new Force Development Proposal to purchase a fleet of wheeled vehicles that was put to Cabinet, more than a year later, in May 1999. In our view, Cabinet should have been engaged earlier on this significant departure from the March 1998 Cabinet approval.
- 4.22 The MoD also went to tender for a greater number of vehicles than agreed in the later Cabinet approval. Cabinet approval should have been sought for this increase.

### ***The longer the acquisition was delayed, the more expensive it became***

4.23 It has taken far too long to acquire the vehicles. Cabinet had instructed that the purchase was to be a high priority and, in November 1998, asked for it to be accelerated. The first vehicles are now not expected to arrive until September 2003, almost five years later. The long time taken to conclude the light armoured vehicle purchase has a number of causes, some of which were avoidable. The reasons for the time taken include:

- the lack of clarity until some way into the project about fundamental aspects of the project definition;
- lengthy processes for specifying the equipment, and disagreements over the most appropriate way to go about producing the specifications;
- the lack of an overall committee or person with responsibility for driving the project through all its stages;
- the decision to go to tender rather than undertake a direct purchase, as recommended by consultants; and
- the hiatus created by the 1999 general election and the need for the new Government to consider its defence priorities before deciding on large acquisitions.

4.24 It would be difficult to attribute particular delays to each of these causes. However, we note that for each one cent movement in the value of the New Zealand dollar there has been a \$10 million impact on the total cost of this project. The New Zealand dollar has been falling in relation to the Canadian dollar. In addition, there has been a further financial impact through military inflation, which averaged 10% a year over the period of the project.

### ***There was insufficient documentation of some key decisions***

4.25 There was insufficient documentation generally, and in particular covering:

- rejection of the HVR recommendation that the light armoured vehicle purchase should not be put to tender;
- the decision to change the C130 transportable requirement from “essential” to “desirable”;
- the rationale for proceeding with a tender for more vehicles than covered by the Cabinet approval (and which would probably be in excess of the amount approved by Cabinet); and
- the timetable put to the Minister of Defence.

***The significant capability requirements associated with the acquisition of 105 LAV IIIs were inadequately assessed before the decision to acquire the vehicles***

- 4.26 The 1998 analysis by the MoD of the capability requirements of armoured vehicles for Army was not drawn on subsequently. Also, no similar analysis was undertaken of other capabilities needed to support a fleet of modern armoured vehicles.
- 4.27 The lack of prior assessment of the associated capability requirements poses risks for the LAV III acquisition. In particular, work to assess Army's skills requirement to maintain a fleet of 105 LAV III vehicles has been started only recently. Until these capabilities have been fully assessed, costed, and provided for, the purchase agreement between the NZDF and the Minister needs to be adjusted to ensure that requirements for the deployment of the LAV III are realistic.

***THE LIGHT OPERATIONAL  
VEHICLE ACQUISITION***



## **5 – Planning For the Acquisition of the Light Operational Vehicles**

### **Introduction**

- 5.1 In this part of the report we describe and comment on the acquisition of the light operational vehicles up to the implementation of the acquisition, which is then covered in Part 6. Detailed concluding comments on the acquisition are set out in Part 7, and the timeline is illustrated in the Appendix on page 65.
- 5.2 Military light operational vehicles are all-wheel drive vehicles intended to act as support vehicles to light armoured vehicles in battlefield situations. Because of the higher operating cost of the light armoured vehicles, it is not cost-effective to use them to move an entire fighting echelon and its equipment. Light operational vehicles fulfil this role, which involves transporting ammunition, equipment and supplies. The light operational vehicles also have support reconnaissance and surveillance operations capability. To fulfil their support function, some vehicles will require armour protection and may be provided with weapon systems.
- 5.3 Army currently operates a fleet of 567 Land Rovers and trailers. The planned operational life for these vehicles expired in 1994 – this was confirmed by their operational failure in Bougainville, beginning in 1995. The Land Rover fleet does not perform the same role as that envisaged for the light operational vehicles. The light operational vehicles are intended to provide a new capability that is specifically intended to support motorisation.
- 5.4 In the same way that light operational vehicles are planned for roles for which it would not be cost-effective to use the light armoured vehicle, Army also uses light commercial, non-military vehicles where the levels of mobility and protection planned for the light operational vehicles are not required. There are thus three levels of vehicle – light armoured, light operating and light commercial – with the light operational vehicle occupying the mid-range in terms of the cost strategy for motorisation.

### **Cabinet Approval – July 1999**

- 5.5 Following the production and approval of a Force Development Proposal in June 1999, Cabinet considered the case for the purchase of a new fleet of light operational vehicles. In July 1999, Cabinet approved in principle the purchase of 308 military light operational vehicles for an expected cost of \$64.4 million.

## Memorandum of Understanding

- 5.6 There was no Memorandum of Understanding between the NZDF and MoD's Acquisitions Division. Parties could not agree on the terms to be specified in a memorandum. In particular, there was no agreement on key milestone dates.

## Technical Specifications

- 5.7 Over the period July to October 1999, a project team comprising staff of the MoD's Acquisitions Division and seconded Army personnel prepared detailed vehicle specifications. A total of 251 specifications were produced, all of which were deemed to be essential. That is, failure to meet any one of these specifications would mean a failure to satisfy the tender conditions.
- 5.8 Developing the specifications required over 50 drafts and re-drafts. Our assessment from the files, and from interviews with those involved, is that this process was hugely frustrating for all the participants and a source of tension between Army, the NZDF and Acquisitions Division.
- 5.9 An area that later proved contentious between Army, the NZDF and the MoD was the mobility requirement – in particular, the amount of ground clearance required. The Force Development Proposal had set an essential requirement that vehicles have a ground clearance of 300mm.
- 5.10 The light operational vehicle will be required to operate on the battlefield in conjunction with the light armoured vehicle. The project team therefore needed to make assumptions about the likely characteristics of the latter vehicle, which had not yet been purchased. By that time, a wheeled armoured vehicle was planned. Since a vehicle such as the LAV III was seen as the vehicle most likely to be selected, it was used to help assess the requirements of the light operational vehicle.
- 5.11 Ground clearance requirements for the light operational vehicle were therefore based around the LAV III specifications. An 8-wheeled vehicle such as the LAV III was anticipated to rapidly create rutted tracks on soft ground, due to the increased ground pressure compared to a tracked vehicle of similar weight. The project team anticipated that the light operational vehicle would have to negotiate the same tracks created by the LAV III. The team calculated that, to achieve commensurate mobility with the LAV III, the light operational vehicle would need to have a ground clearance of 300 mm.
- 5.12 As will be explained later, requiring a ground clearance of 300mm proved to be a contentious issue at the tender evaluation stage. Some of the short-listed vehicles that had a ground clearance of less than 300mm would have cost millions of dollars less for a vehicle fleet than the vehicle that could meet the ground clearance requirement.

- 5.13 The 251 essential specifications were to a fine level of detail. For example, one essential specification was that:
- The interior floor, including the rear cargo area, bonnet and solid canopy shall have some form of non-skid surface.*
- 5.14 Other specifications described the need for wheel changing tools, a jack, tow rope and provision for these tools to be stored. These are all items that would be expected as a matter of course in any “off the shelf” purchase.
- 5.15 But the real point of listing essential specifications should be to allow an assessment of whether or not the vehicles being tendered could meet the specifications being sought. Listing such a large number of technical specifications as essential, when in fact many are minor items, confuses tenderers as to what are the really key criteria for determining the vehicle that best meets the required capability.
- 5.16 We sought to establish why such a detailed list of essential specifications was developed.
- 5.17 Our understanding of Acquisitions Division’s view is that detailed specifications are needed to ensure that manufacturers have enough information to know whether their vehicle is likely to meet the capability sought. A detailed list of specifications also allows a straightforward and transparent method of evaluating tenders.
- 5.18 A view was also expressed that, while detailed specifications are in any case necessary, it was Army that insisted on elaborating specifications to such a fine level of detail. However, Army’s view is that it never sought such detailed specifications, but was told that if an item was not specified as essential then it might not be provided in the vehicle that was eventually selected.
- 5.19 Hence, once again, the level of distrust between Army, and the MoD and the NZDF, delayed the project while these detailed specifications were developed and debated.

## **Review of the Technical Specifications**

- 5.20 In October 1999, Acquisitions Division commissioned HVR to examine the technical specifications, including whether they met the requirements envisaged by the Force Development Proposal. As with the review of the light armoured vehicle specifications, HVR reviewed (amongst other factors):
- whether the essential requirements could be met by an “off the shelf” purchase; and
  - that the specifications were not targeted at any one vehicle.

- 5.21 HVR, after excluding all vehicles with a ground clearance of less than 300mm, concluded that there were 15 possible contenders. Some of these vehicles would not be able to carry the expected loads, but it appeared that at least five vehicles could meet the main requirements being sought.
- 5.22 HVR felt that a healthy competition would be generated for the tender, and suggested that the MoD should ensure that the manufacturers of the compliant vehicles were made aware of the tender.

## 6 – Making the Acquisition of the Light Operational Vehicles

### Request for Tender and Tender Evaluation

- 6.1 The tender was advertised in November 1999, with a closing date of 28 January 2000. The closing date was later extended to 25 February 2000.
- 6.2 The MoD advertises tenders generally and does not target particular manufacturers. In addition to the four bids received, HVR had identified 11 other vehicles as meeting the requirements for ground clearance and load carrying, but no bids were received in respect of these vehicles. The tenders received related to three vehicles:
- Chrysler/Daimler;
  - Land Rover; and
  - Humvee.
- 6.3 Two companies tendered Humvee vehicles. AMG, the USA manufacturer of the Humvee, tendered a left-hand drive version. The tender required right-hand drive vehicles, and a bid in respect of left-hand drive vehicles only could not be compliant. Tenix, an Australian based company, also tendered the Humvee. Its proposal was to acquire Humvees from AMG and convert them to right-hand drive at its factory, and then provide them to the NZDF.
- 6.4 An initial evaluation of these three vehicle types showed that none met all the essential requirements. This is an inherent problem in setting so many technical specifications, all deemed to be essential. If there is a failure to meet even one specification, then a bid can be declared invalid.
- 6.5 The tenders were re-evaluated, which concluded that the Tenix bid was technically compliant. However, its tender price and contractual terms were considered unacceptable, to the extent that this made it “commercially” non-compliant.

### Impasse Reached

- 6.6 By April 2000, it was concluded that there were no compliant bids. One vehicle was commercially non-compliant and the other two were technically non-compliant. The Tenders Review Board asked for a review of the technical requirements to see if they could be relaxed. The MoD wrote to the NZDF on 19 April 2000 conveying this request.

- 6.7 On 9 May 2000, the NZDF wrote to Army advising that there were no compliant bids and suggesting that, to make progress on the project, Army views were needed on the operational implications of accepting a vehicle that could not meet all the technical specifications. A reduction in the ground clearance requirement would, for example, allow consideration of the Land Rover and Chrysler/Daimler vehicles.
- 6.8 Army replied on 23 May 2000 stating that it appeared the major reason for non-compliance with the technical specifications stemmed from the Army requirement for armour protection of 10% of the fleet. This requirement affected the weight of the vehicle and therefore the load-carrying capacity. Army suggested that if the requirement for armour protection was changed from “essential” to “desirable”, the Chrysler/Daimler vehicle could be considered, and that it should be subject to field trials.
- 6.9 The NZDF and MoD view was that no evidence had been produced to demonstrate that the level of armour protection could be reduced, and they were alarmed that Army was apparently prepared to compromise on such an important specification as the level of armour protection. The need for vehicle trials had not been signalled in the tender rules and it was seen as unfair to other tenderers to now introduce a new requirement into the assessment. The NZDF also pointed out that it does not have the capacity to conduct trials with the rigour required to ensure a fair test.
- 6.10 It quickly became apparent to Army that it had misunderstood the request for its views and the implications of the response it had given – by suggesting the armour protection might be “desirable”, Army was effectively ruling armour protection out of consideration. Army therefore altered its original advice, confirming armour protection as an essential specification for a proportion of the fleet. Army referred again to the need for field trials of vehicles under consideration. Or, the alternative of obtaining trial data from manufacturers or current users of the vehicles – to demonstrate performance in temperate and tropical climates when fully loaded, with and without ballistic protection.
- 6.11 In our view, this exchange of correspondence further illustrates the fractured relationships and poor communications that were a feature of both this project and the acquisition of the light armoured vehicles. The main parties work in the same building. A meeting between them – properly minuted and documented – could have helped achieve a shared understanding of the obstacles to progressing the project, and how they might be resolved. Instead, the three-way exchange of correspondence led to confusion and heightened tension between the parties.

## **Cancellation of the Tender**

- 6.12 Army sought to convince the MoD that there might still be a workable solution, and that this would involve reconsideration of the Humvee vehicles. A local engineering firm considered, with the Humvee manufacturer AMG’s endorsement, that it could provide a low-cost conversion of the Humvee vehicles to right-hand drive.

- 6.13 However, at this stage, a more serious matter arose. The MoD believed – and the NZDF concurred – that Army might have made improper contact with one of the tenderers. If this had been so, it could have compromised the integrity of the tender. For this reason, it was decided to cancel the tender and investigate the possibility that the tender had been compromised.
- 6.14 The inquiry found that while there were issues that required management attention for both Army and the NZDF, the tender had not been compromised. The issues requiring management attention have since been followed up, to clarify appropriate actions and procedures in relation to acquisitions.
- 6.15 While the inquiry found that there was no improper behaviour, the accusations of impropriety would have heightened the feelings of mistrust among all parties.

## **7 – Our Views on the Light Operational Vehicle Acquisition**

- 7.1 In our view, the purchase of light operational vehicles up to the subsequent re-tender was not well managed. Our assessment below illustrates similar issues to some of those raised by the light armoured vehicle tender.

### ***The use of essential criteria restricted scope for competition***

- 7.2 In order to ensure an improved process for the light operational vehicles re-tender, HVR was asked to identify the “lessons learnt” from the first tender. HVR identified a number of problems with the first tender. In particular, HVR concluded that the long list of rigid requirements was inflexible, and did not allow tenderers to demonstrate the overall capability of their vehicle to meet mobility and load-carrying requirements. HVR also considered that the significant amounts of supporting information that had to be supplied with the tender would have increased bidder costs and the likelihood of manufacturers declining to bid.

### ***The approach to research of the market for this purchase was, in our view, deficient***

- 7.3 For the light operational vehicle re-tender, Cabinet has approved an amount of between \$60-\$110 million. The MoD approach to the re-tender, in addition to addressing the issues identified by HVR, will include use of a NATO Reference Mobility Model to assess the ability of vehicles to meet the mobility requirements. This model uses data on each vehicle’s mobility and load-carrying features to simulate the ability of vehicles to cross different terrain. Use of this model in the first tender would have assisted in resolving the dispute between the MoD and Army over the ability of various vehicles to meet mobility requirements.
- 7.4 Although the NATO model has been available for many years – in fact, since World War II – Army only became aware of the model in recent months.
- 7.5 We are surprised that Army was not aware of the NATO model. This lack of awareness illustrates a key difficulty with both the light operational vehicle and the light armoured vehicle projects. These projects represent the largest Army re-equipment since World War II. But Army did not have the resources to fully research the market and develop the detailed technical specifications required by the MoD.
- 7.6 A comparison noted by Army was that Army/MoD had two teams of four people to develop specifications for both the light armoured vehicle and the light operational vehicle projects. We also noted that, at the time of these acquisitions, NZDF’s Development Branch had only three staff to undertake its responsibilities on these and other acquisitions in progress at the time.



- 7.7 In Canada, by contrast, we understand that the light armoured vehicle team alone had 60 people, who produced policy on doctrine, training, logistical support, spares, etc.
- 7.8 Staff in NZDF's Development Branch have since been increased to eight. The process being followed for the acquisition of the light operational vehicles up to the issue of the request for tender includes:
- registration of interest and initial evaluation of responses;
  - modelling of vehicle characteristics using the NATO Reference Mobility Model, together with evaluation of vehicle trials;
  - shortlisting of prospective tenderers;
  - due diligence visits to manufacturers;
  - viewing/assessment of overseas data on field testing of candidate vehicles; and
  - final evaluation of prospective tenders, with recommendation through the Tender Review Board.
- 7.9 Such a process – involving field-testing of prospective vehicles – has a much improved chance of achieving a successful outcome.

### ***There was no strategic management of the project***

- 7.10 As with the light armoured vehicle tender, there was regular reporting by the Project Director to the Head of Acquisitions, but no one group or committee was driving the whole project. And this again led to poor communications between the parties and a perception on Army's part that it was being excluded from the acquisition process. The issue of strategic project management has not yet been addressed for the re-tender.

### ***Relationships between the MoD, the NZDF, and Army were dysfunctional***

- 7.11 The poor relationships, misunderstandings and opposed perspectives that we observed in relation to the light operational vehicle tender were similar to those encountered on the light armoured vehicle tender.
- 7.12 The light operational vehicle tender was cancelled owing to suspicions that the integrity of the tender had been compromised, although the subsequent inquiry found issues requiring management attention but no compromise of the tender process.

## 8 – Recommendations

- 8.1 As a result of our assessment of these two acquisitions, the MoD, the NZDF and Army should consider the recommendations set out below. We acknowledge that some of these matters are already being addressed.

### Governance

- 8.2 Acquisition projects of this size should be governed by a steering committee – chaired by the Secretary of Defence, and including senior staff from MoD’s Policy and Planning and Acquisitions Divisions, the NZDF, and the single Services. The involvement of central agencies such as the Treasury should also be considered. The acquisition of defence equipment is an area of significant fiscal risk. We consider that the Treasury’s role on the committee would be one of monitoring and oversight and, if necessary, raising concerns about the direction of the project.
- 8.3 The steering committee should be established as soon as the Force Development Proposal is approved, and should set milestones from capability definition through to the completion of the project. The 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 – independent experts are not inhibited by the culture and political environment of the organisations.
- 8.4 Strong governance should ensure that projects are timely. It should help to resolve or avoid the type of disputes that have plagued both the light armoured vehicle and the light operational vehicle acquisitions.
- 8.5 We understand that, since our investigation, the MoD has introduced a process for ensuring the Minister’s and Cabinet involvement in projects at three key stages:
- capability definition;
  - before calling for tenders; and
  - final approval.

### Relationships

- 8.6 Relationships between the parties dealing with these two acquisitions were dysfunctional. The underlying reasons for the poor relationships are not straightforward. There were mutual misunderstandings of the roles of Army, the NZDF and the MoD, and of the separate interests and obligations of each party. There was mistrust of each other’s motives – strong personalities were

involved and views were expressed in a very forthright and robust fashion. Ameliorating this situation will not be easy. Improved mutual understanding, better, more direct communications, and strong central leadership are required.

- 8.7 In the case of the equipment purchases described in this Report, Army, the NZDF and the MoD need to work together to ensure that there is effective and timely acquisition of the agreed capability. As discussed above, effective governance of acquisition projects is essential.

## Accountabilities

- 8.8 A theme throughout our review has been the tensions between Army and the NZDF, and between Army and the MoD, regarding their respective responsibilities and accountabilities for acquisitions. In this connection, we noted that Cabinet has approved a recommendation to:

*Review the accountabilities and structural relationships between the Ministry of Defence and the NZDF.*<sup>8</sup>

- 8.9 In the light of our findings, we believe that the need for such a review is urgent – and that it should include a review of the structural relationships between the single Services and the NZDF and the MoD.

## Defence Planning

- 8.10 The two acquisitions we reviewed appear to have been handled with little reference to the Defence Planning System. We understand that aspects of the System are not being operated because it is too complex and not user-friendly. The System is currently being revised jointly by the NZDF and the MoD.

- 8.11 In the absence of an effective Defence Planning System, there is a risk that the problems of the LAV III purchase will be repeated in respect of future acquisitions. We consider that an effective planning system could have helped to remedy some of the deficiencies by providing for:

- the provision of comprehensive capability analysis, and measures to ensure that the results of the analysis were used during the acquisition process;
- earlier identification of the key issues involved in the “wheels versus tracks” debate;
- identification of maintenance requirements; and
- identification of the capability requirements to effectively deploy the vehicles being acquired.

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<sup>8</sup> The Government’s *Defence Policy Framework*, June 2000.

- 8.12 The NZDF and MoD review of the Defence Planning System is looking at how more effective use can be made of it. The System is now ten years old and was substantially reviewed five years ago – but it has still not been fully implemented, nor even accepted by some of those whose co-operation would be required to make it work.
- 8.13 Given the history of the Defence Planning System, there must now be doubt as to whether it can be made to work. We therefore recommend an independent review of whether the Defence Planning System is ever likely to operate effectively, or whether it should be replaced.

## **Acquisition Capability**

- 8.14 The LAV III acquisition was the first major purchase of armoured vehicles for many years. We believe that it was unrealistic to expect that Army would have staff with experience in developing detailed technical specifications for the vehicles, and at the same time expect this work to be carried out in isolation from the specifications for existing vehicles.
- 8.15 In these circumstances, it is essential to survey the equipment available on the market thoroughly, using external experts as required. External experts were used for both tenders – but, in our view, they should have been brought in much earlier, to help fill knowledge gaps before substantial in-house time and efforts were expended on the projects.

## **Deciding When to Tender**

- 8.16 The price of new military equipment is estimated to increase by about 10% to 12% a year. In addition, over recent years the New Zealand dollar has declined against North American currencies. North America is the source of much of our military equipment. These factors all suggest that once a Government decision has been made to purchase military equipment, quick action is needed to keep cost escalations to a minimum.
- 8.17 Successive Ministers of Defence have indicated a preference for a tender process for the acquisition of military equipment. A tender process is usually seen as the most effective way of ensuring that the best price is obtained. However, there will at times be exceptions – for example, when one solution clearly stands out from any other. When this happens, a direct purchase should be seriously and carefully considered.
- 8.18 In the case of the light armoured vehicle acquisition, there was good evidence to question the value of going to tender. For any equipment purchase where the equipment from one source appears to be technically well ahead of similar equipment, the MoD needs to assess more carefully the benefits of a tender process against direct purchase.

- 8.19 We recommend that documented policy guidelines are produced on when a direct purchase should be considered as the most appropriate purchase action, and how the attendant new set of risks would be managed.

## **Process Issues**

- 8.20 The process of acquiring military equipment is complex and difficult. In the course of our review of these two acquisitions, we noted a number of areas where the process currently being followed needs to be improved.

## **Technical Specifications**

- 8.21 Potential bidders need to have sufficient information about the vehicle being sought in order to decide whether they have a vehicle that may meet the specifications. Tender documents should also state the requirement for trials data to be provided as part of the bidder's documentation. We believe that MoD's tender rule that all aspects of the essential requirements must be complied with was a particular obstacle because, from a strict legal point of view, failure to meet just one specification could disqualify a tender.
- 8.22 Essential requirements should not be over-specified. Output-based specifications should be used wherever possible, to allow bidders to develop innovative solutions. Commercial off-the-shelf solutions should be preferred, especially since there may be little that manufacturers can do, at an affordable cost, to alter technical specifications for a market as small as New Zealand.
- 8.23 Technical specifications should be underpinned by comprehensive knowledge of vehicles available on the market. Otherwise the specifications may need to be changed at a later stage to enable any bids to be considered, as happened with the light armoured vehicle tender. Agreement of essential criteria also needs to be timely. Developing large numbers of technical specifications proved to be a protracted process for both of these acquisitions. And in the case of the light operational vehicle tender, there was disagreement at the tender evaluation stage about the need for several of the essential criteria. Such disagreements need to be resolved before the Force Development Proposal is finalised.
- 8.24 In our view, the Force Development Proposal – in conjunction with the NATO Reference Mobility Model and field trials – should provide the main information needed to support a decision on the most appropriate light operational vehicle. The NZDF is now moving towards use of the NATO Reference Model, and intends using the results of overseas field trials of potentially suitable vehicles. The MoD should also consider the extent to which detailed technical specifications are needed and add value.
- 8.25 In June 2000, the MoD instituted the following changes to the light operational vehicle tender process that had previously been cancelled:

- more relaxed specifications to allow a wider range of bidders to submit tenders;
- a requirement to use the NATO Reference Model;
- a requirement to use data from overseas trials of vehicles; and
- an independent review of the specifications.

### Off-the-shelf Purchase

- 8.26 In the case of both acquisitions, the intention was to purchase “off-the-shelf” vehicles – that is, vehicles in production that could be purchased with few, if any, modifications to suit Army’s requirements. However, none of the vehicles tendered complied with all aspects of the essential technical specifications, and significant modifications were seriously contemplated.
- 8.27 We consider that more realistic specifications, underpinned by an assessment of the capability of vehicles available on the market, should reduce the need for extensive modifications. And in any case, where manufacturers are being asked to consider a major re-engineering of their vehicles, the cost/benefit case for the modifications should always be carefully assessed.

### Cabinet Authorities

- 8.28 When proceeding with a purchase there is a need to check that Cabinet authority is not being exceeded. In the case of the light armoured vehicles, the MoD went to tender seeking a minimum number of 102 vehicles – whereas the Cabinet approval envisaged 84 vehicles, to cost no more than \$212 million. Tendering for 102 vehicles would clearly have breached the \$212 million limit set by Cabinet. By the close of tenders, in December 1999, the MoD knew that the vehicle cost was millions of dollars in excess of the Cabinet approval in principle.
- 8.29 The MoD needs to ensure that, for subsequent Cabinet approvals, the cost estimates are sufficiently robust and consistent with overall defence priorities and plans.

### Documentation

- 8.30 There was a lack of documentation on some key decisions. For example, documentation was lacking on:
- The decision to proceed with the light armoured vehicle tender even though the consultants hired by the MoD had recommended against a tender. This was an important recommendation and the reasons for rejecting it and deciding to continue with a tender should have been documented.

- The decision to change the C130 transportable requirement from “essential” to “desirable” should have been documented. This was a decision with important implications for the ability for Army to move equipment quickly. The reasons for deciding to change the requirement should have been documented.
- There was no documentation of the decision to employ HVR for a consultancy that cost the MoD many thousands of dollars.

8.31 The MoD needs to ensure that there is full documentation on all key events that occur during the purchase process.

### Targeting the Registration of Interest or Request for Tender

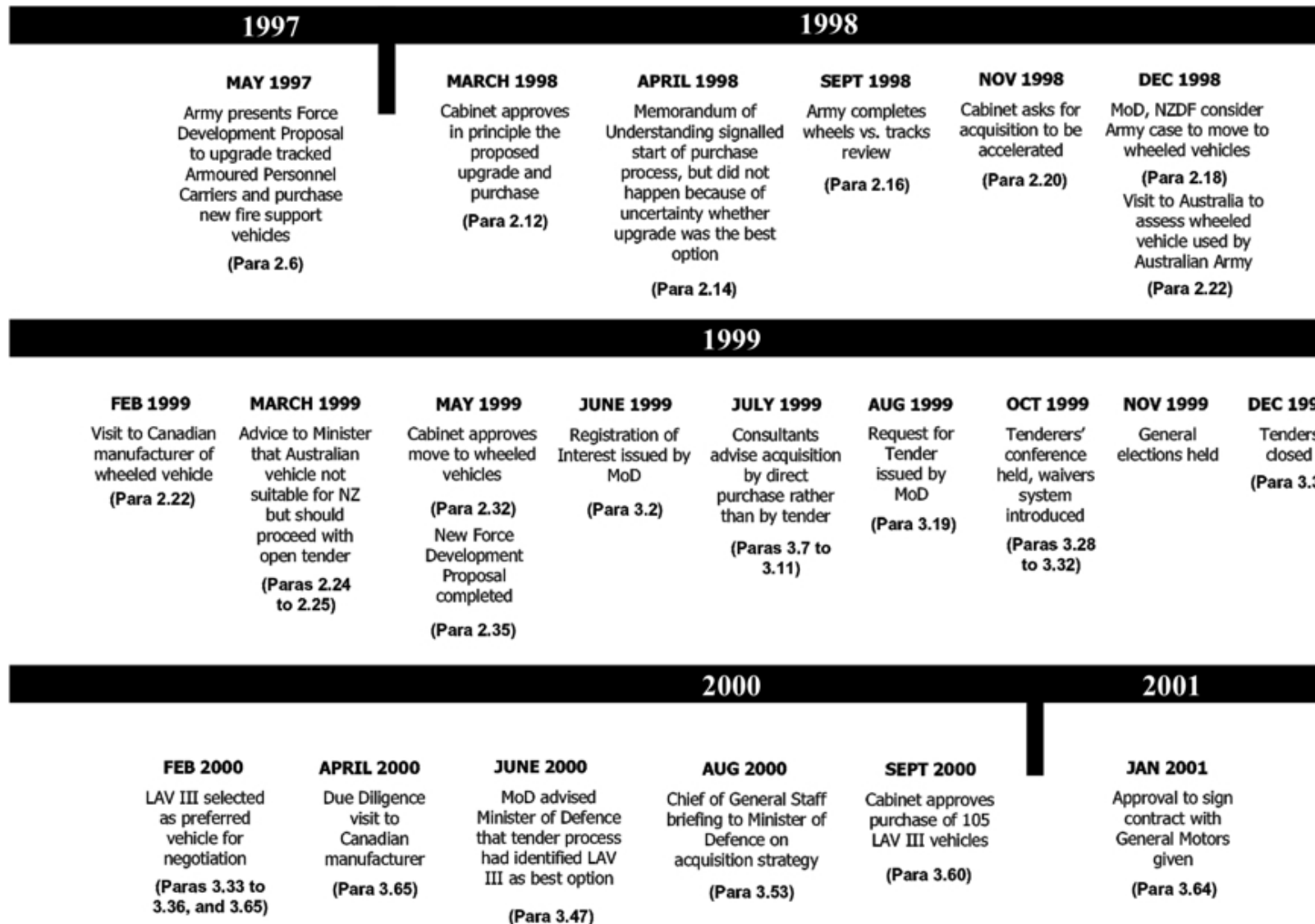
8.32 MoD policy is to advertise generally the Registration of Interest and Request for Tender stages. However, the reviews carried out by HVR identified those vehicles that could meet the minimum specifications.

8.33 Where independent experts are involved in reviewing specifications, it would make sense to target the manufacturers of the identified vehicles for the Registration of Interest and Request for Tender. In this way, there would be a greater chance of receiving tenders from manufacturers that have vehicles of the type sought.

### Foreign Exchange Cover

8.34 The MoD needs to do more to guard against potential exposure to price escalation as a result of downward movements in value of the New Zealand dollar. In particular, it needs to consider whether the current interpretation of its Foreign Exchange cover policy financially disadvantages the NZDF, as the customer, through higher prices and related depreciation and capital charges.

## Light Armoured Vehicle Timeline





## Light Operational Vehicle Timeline

**1999**

<b>JUNE 1999</b> Force Development Proposal for Light Operational Vehicle completed <b>(Para 5.5)</b>	<b>JULY 1999</b> Cabinet approves in principle the purchase of 308 Light Operational Vehicles <b>(Para 5.5)</b>	<b>JULY 1999</b> Project team starts to prepare detailed specifications <b>(Para 5.7)</b>	<b>OCT 1999</b> Specifications complete. Consultants review technical specifications <b>(Para 5.20)</b>	<b>NOV 1999</b> Request for Tender issued <b>(Para 6.1)</b>
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**2000**

<b>FEB 2000</b> Tenders closed <b>(Para 6.1)</b>	<b>APRIL 2000</b> Review of tenders completed, no compliant bids <b>(Paras 6.4 to 6.5)</b>	<b>JUNE 2000</b> Tender cancelled Decision to re-start acquisition <b>(Para 6.13)</b>
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**2001**

<b>AUG 2001</b> Registration of Interest completed. Selective competitive tender to be held.
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