DEPARTMENT OF THE SENATE
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THE PARLIAMENT OF THE
COMMONWEALTH OF AUSTRALIA

Joint Committee
on
Foreign Affairs, Defence and Trade

STOCKHOLDING AND SUSTAINABILITY IN THE AUSTRALIAN DEFENCE FORCE

THE SENATE
- 4 MAY 1993
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CONTENTS

TERMS OF REFERENCE

To investigate and report on:

(a) the adequacy and suitability of ADF stockholding policies and practice in a changing strategic environment;

(b) the effectiveness of the logistics system in meeting surge and sustainability objectives.

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* Resigned from the Parliament on 23 August 1991
** Resigned from the Parliament on 31 January 1992

Secretary: Ms M J Vincent

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Rt Hon I McC Sinclair, MP
(from May 91)
Mr W L Taylor, MP

*Resigned from the Parliament on 23 August 1991

Secretary: Ms G E Gould

Inquiry Staff: Mrs E Robertson (to April 92)
Mrs M Ellis (from April 92)

GLOSSARY

ADF	Australian Defence Force
ADP	Automatic Data Processing
ASADPO	Australian Strategic Analysis and Defence Policy Objectives
BRWG	Business Review Working Group
CDF	Chief of the Defence Force
CORD	Chief of the Defence Force Readiness Directive
COSC	Chiefs of Staff Committee
CPD	Chief of the Defence Force Preparedness Directive
DESINE	Defence EDP System Integrated Network Environment
DFDC	Defence Force Development Committee
DLRP	Defence Logistics Redevelopment Project
DNSDC	Defence National Storage and Distribution Centre
DOA87	The Defence of Australia 1987 - Defence White Paper
ELCID	Executive Level Computer Initiated Disposal
EDP	Electronic Data Processing
FFG	Guided Missile Frigate
FMS	Foreign Military Sales
FY1991/92	Financial Year 1991/92
HQADF	Headquarters Australian Defence Force
HQIAF	Headquarters Israeli Air Force
IAF	Israeli Air Force
JCPA	Joint Committee of Public Accounts
JIT	Just-in-Time
MFO	Multinational Force and Observers
MILSTRIP	Military Standard Requisitioning and Issuing Procedures
MINURSO	United Nations Peacekeeping Mission in Western Sahara
NCBD	Nuclear Chemical Biological Defence
ODF	Operational Deployment Force
ORR	Operational Readiness Report
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
SDSS	Standard Defence Supply System
SSLM	Single Service Logistics Management
SSRP	Supply Systems Redevelopment Project
UN	United Nations
UNOSOM	United Nations Operations in Somalia
UNPROFOR	United Nations Protection Force
UNSCOM	United Nations Special Commission in Iraq
UNTSO	United Nations Truce Supervision Organisation
UNTAC	United Nations Transitional Authority in Cambodia
VCDF	Vice Chief of the Defence Force
8/9 RAR	8/9th Battalion, Royal Australian Regiment

FOREWORD

On 4 March 1992 the Minister for Defence referred the issue of Australian Defence Force (ADF) stockholding policies to the Joint Committee on Foreign Affairs, Defence and Trade for inquiry. The Joint Committee referred the matter to its Defence Sub-Committee for investigation.

The Committee welcomed the reference from the Minister because Members had for some time been concerned about comments made by the Chief of the Defence Force (CDF) at the conference *Australia and the World: Prologue and Prospects* in December 1988:

> There are some problem areas with readiness . . . I am concerned about the capacity of our logistic system to support the operational elements which are required at the higher states of readiness. It is obviously unsound to hold combat forces at short notice to move if the logistic system is too inflexible, cumbersome or incapable to match that notice. It may be that the balance here is not quite right.
>
> Second, there is the vexed question of stockholdings, particularly of ammunition and spare parts. There is a careful balance to be struck between, on the one hand, wasting resources by holding unnecessarily large inventories of expensive stores and, on the other hand, holding too little and being caught short.
>
> Finally, there is the need to ensure that ADF activity rates in peacetime are matched carefully with readiness-related training and with the generation and maintenance of expansion-base skills. This is important not only to provide job satisfaction but to generate the experience and expertise essential to our long term professionalism. There is scope here for greater understanding of the relationship between activity rates, operational readiness and force expansion.
>
> To overcome these problem areas, the Secretary of the Department of Defence and I have commissioned major reviews of stockholding policy and operational readiness. The results are still being considered but they have clearly led to a better understanding of the issues involved.[1]

The Committee deemed it timely to ascertain the progress that had been made in resolving those 'problem areas with readiness' and to

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1 Ball (1990), p.361.

assess the extent to which the 'better understanding of the issues involved' had led to the development of a comprehensive Australian Defence Force stockholding policy.

This is the first time that a parliamentary committee has inquired into matters of such fundamental importance as the adequacy and suitability of ADF stockholding policies and practice and the effectiveness of the logistics system in meeting surge and sustainability objectives.

Stockholding matters cannot of course be considered in isolation. They have to be related to preparedness, which in turn has to be linked to the capabilities that, in accordance with strategic guidance, must be possessed by the Australian Defence Force.[2] This inquiry therefore goes to the heart of Australia's capability to mount effective operations, not only within our direct area of strategic interest but also as part of our alliance responsibilities. It is particularly timely as Australia faces a more uncertain strategic environment following the dramatic changes in Eastern Europe and the former Soviet Union and the consequent effects in our region.

The inquiry was advertised in the national press on 14 March 1992. Recognising the specialised nature of the inquiry, the Defence Sub-Committee invited submissions from key organisations and individuals. A total of 24 submissions and supplementary submissions was received. Four public hearings at which representatives of the Department of Defence appeared as prime witnesses were conducted in Canberra. Other witnesses included the Australia Defence Association, AWA Defence Industries, Australian Submarine Corporation, Returned and Services League and Brigadier G J Christopherson, AM,(Retired), Defence Fellow 1990. The Defence Sub-Committee inspected the Navy Supply Centre at Zetland, 2 Stores Depot at Regents Park and Moorebank Logistic Group during the course of this inquiry.

An important function of parliamentary committees is to scrutinise portfolio activities. The Joint Committee on Foreign Affairs, Defence and Trade maintains a watching brief over the programs and administrative practices of the Department of Defence.

Notwithstanding the fact that the Minister for Defence had referred the

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2 Evidence, p.7.

matter of stockholding policies to the Committee, the inquiry was constantly frustrated by the unwillingness of Defence to provide answers to the questions posed by the Committee.

Several issues were canvassed at the first public hearing on 25 May 1992. As the inquiry progressed the Committee pursued some specific issues in greater detail. The transcripts of evidence taken at the public hearings demonstrate that Defence merely reiterated at subsequent hearings the information provided at the first public hearing. The transcripts also illustrate the difficulty experienced by the Committee in eliciting answers from the witnesses. Without access to information, the Committee cannot form judgements on the adequacy of policies.[3]

There is no justification for withholding information relevant to a parliamentary committee inquiry from the Committee charged with the conduct of the inquiry. Fundamental to the inquiry into ADF stockholding policies is the question of the extent of stocks held by the ADF to meet contingencies. The Committee was informed that the information is highly classified and cannot be made available.[4] Defence appeared unwilling to provide information categorised at even the lowest level of classification. Much of the information about the ADF which was withheld from the Committee is readily available in the United States, a major source of defence equipment.

In the face of such difficulties I am particularly grateful for the dedication of the Members who gave their time and effort in support of this complex inquiry and the contribution of the staff of the Committee Secretariat.

E J Lindsay, RFD, MP
Chairman
Defence Sub-Committee

December 1992

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3 Evidence, pp.165-6; 183-4.

4 Evidence, p.183-4.

CHAPTER ONE

DEVELOPMENT OF AUSTRALIAN DEFENCE FORCE STOCKHOLDING POLICY

Introduction

1.1 The Australian Defence Force (ADF) is required to develop and maintain an appropriate military capability to be ready to meet any hostilities which might arise at short notice against Australia and to respond to crises within the South Pacific.[1]

1.2 Military capability has two major components:

a. force structure; and

b. the preparedness of the force structure ie the ability to make forces ready for, and then sustain them on, operations.

Preparedness policy sets the operational objectives and describes the operational assumptions on which stockholdings are to be based. Stockholding policy prescribes how the reserve stocks needed to satisfy those operational objectives are determined and costed.[2] Reserve stock is for the surge and sustainability of the ADF through raising forces from peacetime to combat readiness capability levels and sustaining the forces in operations. The Terms of Reference of the inquiry therefore encompass both preparedness (ie readiness and sustainability) policy and stockholding policy.

1.3 Traditionally, within the Services, defence stockholdings have been considered within the categories of:

a. Operating Stock. Also referred to as 'working stock', the operating stock is used to maintain peacetime capability levels, primarily training and exercise commitments. The stock levels vary as the result of consumption and replenishment.

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1 ASP90, p.41.

2 Defence, Submission, p.3.

b. Reserve Stock. The reserve stock is additional to operating stock and is not expected to be used in peacetime.[3]

1.4 The methods used in determining operating and reserve stock requirements have differed. Operating stock levels have been influenced by peacetime demand patterns and based on known factors, including programmed training activity. Reserve stock levels have been based on assumed contingency planning factors which are drawn from strategic guidance and threat assessments.

1.5 Decisions on resources allocated to operating and reserve stocks have also been based on different objectives and have been made at different levels. After the initial stocks have been established as part of capital procurement, the replenishment of operating stocks has been funded as operating costs within individual Service programs. The objective has been cost-effective support for peacetime activities. The judgements made in resource allocation has included reasonable demand satisfaction rates against competing priorities for available funds. Reserve stocks are funded solely as capital investment. The resource allocations are determined at HQADF/Departmental level where judgements are made on the best affordable mix of force structure and military capability. An important factor has been the assessment of risk in the context of strategic guidance.[4]

1.6 The single-Service practices in maintaining reserve stocks are:

a. Navy. There is no differentiation between operating and reserve stocks but it is accepted that stocks of munitions are largely reserve in nature. Total munitions stocks are based on multiples or percentages of full ships' outfits where the content of a ship's outfit is determined by weapons configuration and storage facilities. The Navy justifies its munitions stock requirements against potential usage in conflict. Expected usage rates in credible contingencies are not given separate consideration.

b. Army. Reserve stocks of ammunition and other stores are

[3] Defence, Submission, p.6.

[4] Defence, Submission, pp.6-7.

maintained for force elements on shorter readiness notice. These stocks represent a specified number of days total usage at rates assessed as appropriate to credible low and escalated low level conflict. The Army assessments are based on the analysis and extrapolation of historical usage rates in various conflicts.

c. Air Force. Stocks of selected munitions and warlike stores are maintained by the Air Force. The stocks represent the annual usage at peacetime rates of effort and convert to a lesser period at the full wartime usage rate. The Air Force practice does not consider usage rates for credible contingencies.[5]

1.7 According to Commodore Cummins (Retired), in evidence to the Committee:

> Over many years, each of the Services has carefully worked out what stockholding it requires against the scenarios and the strategic setting approved by the government of the day. There has always been the difficulty . . . of getting an overall defence policy for stockholding as a result of those three separate sets of work. This has meant that when it came to Budget allocation for the supporting of stocks, for the purchase of expensive missile items in particular and for setting credible levels of spare parts, there has been no overall central policy of the Defence Department. Each of the Services has valiantly followed its own policies as far as it was able and taken submissions to central committees to increase or adjust missile and ammunition stocks, with varying levels of success. The matter has always bogged down, in my experience, in arguments about what level of action Australia's forces could be involved in, and how and where, and at the end of the day there was always a budgetary restraint that led to a policy not being able to be put in place.[6]

Historical Background

1.8 The ADF first attempted to produce a stockholding policy in

[5] Defence, Submission, pp.9-10.

[6] Commodore Cummins, Evidence, p.244.

1963 when a policy paper relating to war resources of ammunition was presented to Cabinet. Although the paper was not endorsed, in the absence of a more comprehensive proposal, it became the basis for planning until the early 1970s.[7]

1.9 In 1973 the failure of a major review of stocking policy to obtain Departmental endorsement resulted in each of the Services developing its own interim stockholding policy pending the development of an endorsed Defence policy.

1.10 Meanwhile a series of draft papers addressed the issue. In 1976 a draft paper entitled 'Principles Relating to Stockholding Policy' was prepared. The cost implications were not canvassed in the paper and it subsequently lapsed. In July 1977 Defence again raised the issue, this time recognising the need both for an updated stocking policy and an operational policy. A further draft paper on Defence Stocking Policy was consequently produced in April 1978.

1.11 In 1979 a Steering Group on Defence Stockholding Policy Development was established. Two years later the Steering Group concluded that the stockholding objectives proposed in general policy terms by the Services provided an appropriate level of capability for low level contingencies and a margin capability to meet escalating circumstances. No further action was taken on the report of the Steering Group. When the issue was again considered in 1983 the findings of the Steering Group were out of date. Further substantive action on stockholding policy was then deferred until new strategic guidance had been issued.[8]

1.12 Not surprisingly, the *Strategic Basis* paper which was subsequently produced in 1983 did not introduce any change of direction in strategic thinking from that which had its beginnings as early as the 1968 *Strategic Basis* paper.[9] As Dr Paul Dibb demonstrated in his *Review of Australia's Defence Capabilities*, the 1983 paper served to consolidate and augment the earlier deliberations on the defence of

7 *ADF Stockholding Doctrine & Policy* (1990), p.21.

8 Baker-Heggen (1988), Annex A.

9 Dibb (1986), p.24.

Australia[10]:

> The 1968 *Strategic Basis* articulated the need for forces 'prepared to deal with sporadic attacks and raids on the mainland, which could be more readily attempted and could take the form of small scale air and submarine attacks and commando raids'. . .
>
> The 1971 *Strategic Basis* paper, for the first time, canvassed the prospect of varying levels of threat developing over increasing time-scales . . . Thinking on lead times was developed and the notion of an expansion base was . . . introduced in the 1973 paper.
>
> By 1975 this thinking had crystallised in the concept of a 'core force', able to undertake peacetime tasks and to deal with 'a range of low-level contingencies which have sufficient credibility', and 'with relevant skills and equipment capable of timely expansion to deter or meet a developing situation'.
>
> The 1976 *Australian Strategic Analysis and Defence Policy Objectives* (ASADPO) paper . . . observed that a warning time which began when specific threats were perceived was too narrowly based, and that defence planning and preparations could be expected to be responsive to adverse strategic changes in advance of a perceived threat. This was taken up in the 1976 *Defence White Paper*, which said that Australia's defence interest was not confined to the presence or absence of threat but was concerned with a broader range of developments, including those that introduced uncertainties into our strategic prospects . . .
>
> The 1979 [ASADPO] paper . . . attempted to set out - for the first time - a summary of defence policy objectives and capability requirements. ASADPO 79 reaffirmed the assessment, going back as far as 1971, that even with the support of a major power, it would take at least 8 to 10 years for the development of a regional capacity to mount a major attack against us.
>
> In the 1983 *Strategic Basis* paper this important judgement is repeated . . . Forms of military pressure that are credible in the shorter term are illustrated by reference to relatively small-scale harassment and raids on remote settlements, coastal shipping and other targets around Australia's north.[11]

The delay in addressing the issue of a stockholding policy could not

10 Dibb (1986), p.26.

11 Dibb (1986), pp.24-6.

therefore be justifiably attributed to unexpected shifts in strategic guidance.

1.13 A major problem, in Dibb's view, was that the *Strategic Basis* did not develop arguments for capability priorities. On only one occasion had a companion document been produced which outlined the defence capabilities required in some sort of general priority order.[12] The *Defence Force Capabilities* document of 1981 was, however, endorsed by the Defence Force Development Committee (DFDC) only 'as a background document for planning staff'.[13]

1.14 Dibb further identified lack of agreement over the appropriate contingencies against which reserve stock should be held and differing single-Service philosophies which resulted in piecemeal policies as major factors preventing progress in the development of an ADF stockholding policy.[14]

> *It is unsatisfactory that there is no agreement within Defence on policy for war reserves and stockholding, and that the ADF's sustainability in combat cannot be easily assessed.* The Review recommends that a start would be to determine the adequacy of existing stocks to sustain military operations for periods of three months and six months in circumstances of intermittent low-level conflict in the north of the continent.
>
> *No need is seen for large defence stocks to be held as a contingency against the absence of overseas supply in wartime, although there may be justification for procuring greater reserve stocks of selected spare parts.*[15]

1.15 Dibb considered Defence's inability to assess sustainability even in low-level combat a serious deficiency. He proposed that the problem be tackled through contingency studies, exercise experience and the development of logistics concepts incorporating, among other things, stockholding. Dibb's *1986 Review* thereby provided new impetus to the attempt to develop an ADF stockholding policy.

12 Dibb (1986), p.30.

13 Dibb (1986), p.26.

14 Defence, Submission, p.8.

15 Dibb (1986), p.14.

1.16 Further impetus came with the Auditor-General's efficiency audit report on RAAF explosive ordnance the following year.[16] The objective of the audit of RAAF ammunition was to evaluate 'the adequacy and effectiveness of procedures and practices relating to the procurement, inspection, storage, handling and use of ammunition (explosive ordnance) within the Royal Australian Air Force'.

1.17 The report was highly critical of matters associated with stockholding policy, in particular for war reserves. For example, the Department of Defence was unable to provide Audit with details of the total cost or value of its RAAF explosive ordnance inventory, due to the manner in which its management information systems were structured. Similarly, figures detailing the total annual cost of RAAF's procurement, storage and transportation of explosive ordnance were not readily available.[17]

Recent Initiatives

1.18 The Government's 1987 *Defence of Australia* Policy Information Paper (DOA87) provides the basis for strategic guidance. DOA87 established the doctrine of defence self-reliance which was the 'start-point' for recent work in stockholding policy.[18]

Strategic Guidance

1.19 Strategic guidance, derived from government policy and the assessment of a low threat strategic environment, is the prime influence in Defence consideration of force structure, ADF preparedness and stockholding policies. Selected statements from the Defence submission which provide the basis for evolving policies and plans are:

> Strategic guidance is the basis for assessing the nature of conflict which might be faced by the ADF, and the timeframe over which such conflict may emerge. Defence planning is based on periodic assessments of our strategic environment and the broad range of

16 *ADF Stockholding Doctrine & Policy* (1990), p.4.

17 Auditor-General (1987), p.1.

18 Defence, Submission, p.8; Evidence, p.8.

capabilities that could realistically be projected against Australia.[19]

> This policy [defence self-reliance] required Australia to have the independent military capability (force structure and preparedness) needed to deal with a range of 'credible' contingencies which could arise over shorter timescales and to provide a suitable basis for expansion should Australia's circumstances deteriorate over the longer term. This guidance provided the priorities and logical framework around which the requirement for stockholdings should be based.[20]
>
> [J]udgements are made as to the best affordable mix of force structure and preparedness in generating desired military capability. An important input to these judgements is the assessment of risk in the light of strategic guidance.
>
> . . . The central theme of current strategic guidance is that higher levels of threat could only emerge over significant timeframes, and that sufficient warning would be available to mobilise resources.
>
> . . . current planning is focused largely on ensuring the preparedness of the force in being to conduct operations and tasks associated with low level conflict and peacetime operations. The ADF is also structured and maintained to provide a suitable basis for timely expansion should strategic circumstances deteriorate over the longer term.[21]

1.20 Defence policies, force structure, preparedness priorities and stockholding considerations are thus aligned to peacetime operations and credible low level conflict. Preparation for and expansion to meet higher levels of threat is dependent on sufficient warning being available to permit assessment, approval and procurement of additional resources.

Development of Australian Defence Force Preparedness Policies

1.21 On 5 May 1988 the CDF and the Secretary of the Department of Defence directed Major General J Baker and Air Vice Marshal A Heggen to conduct a review of stockholding policy for the ADF and to report by 1 July 1988.[22]

1.22 The CDF and Secretary recognised the difficulties which had been experienced over the years in deriving useful stockholding policies and charged Baker and Heggen with producing a policy that had practical application ie that would assist judgments on priorities for levels of investment in particular areas.[23] As part of the review, Baker and Heggen were asked to address:

a. Government-endorsed strategic guidance and objectives and the 1987 White Paper, as they might inform the purpose and application of a stockholding policy, drawing on and developing as necessary relevant concepts of operation;

b. broad methodologies to be adopted to derive levels of stockholding for specific commodities and force-element groups;

c. such important factors for logistics concepts as self-reliance, overseas supply, formal logistic resupply arrangements, indigenous supply (both private and public sector), reduction-of-lead-time stocks, sensitivity of stockholding to different rates of effort, etc;

d. stockholding policies and plans as currently proposed or adopted by the Services, taking into account resources acquired for routine training; and

e. any other relevant factors.[24]

1.23 In their report Baker and Heggen did not attempt to formulate a single statement of stockholding policy:

> Such a statement is seen as an unattainable, impracticable objective. There are simply too many complex judgements, variables and issues of priority involved to formulate a concise statement that could be agreed and would endure as perceptions of strategic circumstances,

19 Defence, Submission, p.7.

20 Defence, Submission, p.8.

21 Defence, Submission, pp.7-8.

22 *ADF Stockholding Doctrine & Policy* (1990), p.22.

23 Baker-Heggen (1988), Annex B.

24 Baker-Heggen (1988), Annex B.

> circumstances, operational capabilities, ADF preparedness and logistic efficiencies change over time. For the most part previous attempts over many years to derive such a statement have failed, not because of lack of endeavour but because the aim was simply unachievable in the complex, dynamic management environment of the defence enterprise.[25]

1.24 The report concluded that:

a. a single definitive statement of reserve stockholding policy was impracticable;

b. reserve stockholding should be managed within the overall force development process, as a component of military capability;

c. common stockholding terminology was required, and a clear distinction needed to be made between holdings of reserve and 'working' (ie operating) stock; and

d. the Services systems for calculating contingency usage rates needed to be refined.[26]

1.25 In its submission to the Committee, Defence observed that:

> . . . follow-up to the last two of these conclusions would take some time to implement. Accordingly, an initial examination of reserve stockholdings was proposed in 1989. This sought 'one-off' proposals from each of the Services to address major reserve stock shortfalls (if any) in the short term. However, the proposal attracted no bids from the Services; in the absence of endorsed contingency activity levels and usage rates such bids would have been extremely difficult to justify.[27]

The Committee is not surprised that no bids were forthcoming from the Services: in the absence of a policy, there could be no justification for allocating resources to reserve stocks.

1.26 The reserve stockholding policies under development within

[25] Baker-Heggen (1988), p.7-1.

[26] Defence, Submission, pp.8-9.

[27] Defence, Submission, p.9.

Defence and HQADF have evolved from a 1988 review of ADF operational readiness carried out by Air Commodore I Westmore. Following Departmental consideration of the Baker-Heggen and Westmore reports, subsequent studies provided a conceptual framework for examining stockholding issues, based on the premise:

> . . . that it made no sense to consider stockholding as a separate issue: stocks represent just one of several types of resource within preparedness and hence within military capability.[28]

1.27 A development program for preparedness and stockholding was instituted. The aim of the development program was to establish three elements that were missing at the time of the Dibb and Baker-Heggen reviews, namely, preparedness objectives, endorsed activity levels and usage rates and reserve stockholding policy. The program therefore addressed the following issues:

a. Operational Objectives. The operational requirements on which stockholdings should be based were not clear. There was no statement of the operational levels of capability that should be maintained, the level to which they would need to be increased for contingency operations, the speed at which these higher levels might need to be achieved, and the period for which they might need to be sustained.

b. Activity Levels and Usage Rates. There was no clear determination of what the ADF might actually be called upon to do in contingencies.

   (1) Operational concepts derived from strategic guidance were not sufficiently developed and detailed to allow the Services to determine the activity levels and usage rates that would apply in credible contingencies.

   (2) To the extent to which the Services had determined their usage rates, they had not been endorsed by HQADF and the Department as being consistent with strategic guidance.

c. Stockholding Policy. No ADF-wide policy (including terminology) existed to guide the Services in determining reserve stock

[28] Defence, Submission, p.14.

requirements.

d. Management Processes. While processes were in place to manage the development of the force structure component of military capability, they had not been used to consider the other component - preparedness.[29]

1.28 An interim report in December 1990 identified broad requirement determination principles and proposed reserve stockholding terminology, based upon assumptions as to the form that sustainability policy and objectives would eventually take. The report was not submitted for higher level endorsement, however, pending further progress with the work on sustainability.[30]

1.29 Nevertheless, the interim report was considered to have made major contributions which were identified as follows. The report:

a. developed a conceptual framework for the logical examination of the stockholding issue. This framework identified the logical steps for determining reserve stock requirements from preparedness objectives, managing preparedness levels within strategic and financial guidance, and balancing the separate components of military capability. The report emphasised that it made no sense to consider stockholding as a separate issue: stocks represent just one of several types of resource within preparedness and hence within military capability; ultimately they must be determined by the high level resource allocation processes that address those wider issues;

b. identified stock categories and definitions closely tied to preparedness concepts. This would:

   (1) allow reserve stocks to be defined, calculated and reported in a way that would relate directly to the preparedness objectives that drive them; and

29 Defence, Submission, p.10-11.

30 Defence advised that the revisions to the interim report, *ADF Stockholding Doctrine & Policy*, are scheduled for completion for COSC endorsement in 1992.

   (2) ensure a common approach across the Services, to allow ready interpretation at HQADF and the Department;

c. identified and explained principles to guide determination of reserve stocks from preparedness objectives;

d. explored reserve stock management issues. These included resource allocation, reporting, and information systems.[31]

1.30 Since the interim report was produced in December 1990, the following progress has been made:

a. some of the requirement determination principles identified in the interim report have been effectively agreed during the COSC's subsequent consideration of preparedness issues; and

b. reserve stockholding categories proposed in the interim report, namely, workup stock, operational viability stock and sustainability stock, have been taken up within broader preparedness resource categories agreed by the COSC in May 1991;

c. guidance on priorities for resource allocation has been agreed;

d. some changes have been made to policy for capital equipment acquisition, to accommodate preparedness and reserve stockholding requirements.[32]

1.31 The work on ADF stockholding policy is not yet complete. Although the operational objectives missing in 1988 have been provided in the form of preparedness objectives, the endorsed activity levels and usage rates which form the essential basis for determining reserve stock requirements from preparedness objectives have not yet been established.[33]

31 Defence, Submission, p.14.

32 Defence, Submission, pp.14-15.

33 Defence, Submission, p.11.

Preparedness Policy and Objectives

1.32 There are two components of preparedness - readiness and sustainability.

Readiness

1.33 Readiness refers to the ability of the ADF to make forces ready to conduct specified operational roles within a specified period of time called readiness notice.

1.34 Readiness policy and objectives were established by the CDF in the 1989 Chief of the Defence Force Readiness Directive (CORD).[34] The policy defined operational readiness terms and concepts. The CORD also explained how the readiness notice and required operational level of capability for each ADF force element would be set with reference to the likely form and characteristics of operations. Readiness objectives for force elements were expressed in:

a. Readiness Notice - the number of hours or days each force element was allowed to achieve the level of capability required to conduct specified roles and tasks; and

b. Capability Criteria - which define the required operational level of capability in terms of equipment, manpower and training.[35]

1.35 Biannual Operational Readiness Reports (ORRs) were also introduced. The reports, on 31 May and 30 November,[36] record the readiness state for all force elements against the CORD objectives. The Service Chiefs of Staff are required to report immediately when, for any reason, they are unable to maintain a force element at the specified level of preparedness.

[34] Since mid-1992, the CORD has been retitled the Chief of the Defence Force Preparedness Directive (CPD).

[35] Defence, Submission, p.12.

[36] Defence, Submission, p.29.

Sustainability

1.36 Sustainability refers to the ability of the ADF to support forces on operations for as long as may be necessary.

1.37 Policy for the sustainability component of preparedness was not addressed in the first two issues of the CORD. In May 1991, however, the COSC established interim sustainability guidance for inclusion in the 1991 CORD.

1.38 The interim sustainability objectives set in the 1991 CORD aimed to allow the Services to begin more comprehensive assessment of their states of preparedness. Specifically, it was expected that preparedness reporting from then on would include sustainability. The ORRs submitted by the Services for the period to 30 November 1991 however continued to address readiness only. The problem rested in the difficulty of determining usage rates.[37]

Emerging Stockholding Principles

1.39 The Defence studies have proposed a number of principles which are being considered within preparedness planning:

a. Activity Levels and Usage Rates. Reserve stock requirements should be based on expected activity levels and usage rates advised by preparedness policy;

b. Leadtimes. Stocks need to be held in reserve only if they cannot be obtained in a timely manner by initiating procurement in the specified readiness notice period;

c. Supplementary Nature of Reserve Stock. Reserve stocks are needed only to provide for the increase in demand over and above normal peacetime levels, not for total usage during contingencies; and

d. Service Reserve Stock Bids. Because clear distinctions between operating and reserve stocks have not always been made in the past, there will be operating stocks which can be used to offset

[37] Defence, Submission, p.12-13.

initial bids for reserve stock funding.

The New Reserve Stock Categories

1.40 Consistent with the ADF preparedness concept and the proposed stockholding principles, reserve stock is being categorised as:

a. Work-up Stock - needed to enable forces to be brought from peacetime levels to operational levels of capability within the specified readiness period;

b. Operational Viability Stock - needed to allow forces to conduct operations for a specified period without external support; and

c. Sustainability Stock - which enables forces to be supported in operations for a specified period after the operational viability period.[38]

1.41 Within the framework of the ADF preparedness concept and the stockholding principles, operating stocks are reassigned within the three reserve stock categories. The reassigned stock provides the resources necessary for designated units to meet capability criteria.

1.42 There is disagreement within Defence on what low level contingencies need to be prepared for. In a situation where specific threats are not evident, ADF preparations including capability criteria should provide for reserve stock and equipment needs to meet the most extreme credible threat scenario. The Committee endorses the concern expressed by CDF about the capacity of our logistics system to support the operational elements which are required at the higher states of readiness.[39] The equipment problems evidenced in outfitting small forces for UN commitments add to that concern.

Activity Levels and Usage Rates

1.43 In May 1991 the Chiefs of Staff Committee (COSC) established interim guidance from which the Services were to determine

[38] Defence, Submission, p.16.

[39] Refer to page xi.

the activity levels and usage rates appropriate to low level conflict. The Services were to use these activity levels and usage rates to quantify the resource implications of the sustainability requirement that had been set.

1.44 The COSC's interim guidance was that activity levels and usage rates for low level conflict would be the same as those required to maintain forces at the ready state in peacetime, plus an allowance of a certain number of days per month of operations to reflect increased usage resulting from short duration, localised engagements with the enemy.[40]

1.45 At that time the Services were directed to conduct further studies into low level conflict activity levels and usage rates in order to refine the interim planning assumptions.

1.46 In its submission to the inquiry, Defence observed that

> . . . it transpired that the process of determining usage rates was more complex and time consuming than had been anticipated. It was also apparent that more detailed guidance was required if the Services were to progress at a satisfactory rate in their further studies of low level conflict activity levels and usage rates.[41]

1.47 In April 1992 therefore it was determined that a submission be prepared for consideration by the COSC, proposing:

(1) more detailed guidance on the principles and procedures that should direct the determination of contingency activity levels and usage rates; and

(2) a timetable for development of low level contingency activity levels and usage rates by the end of 1992.[42]

1.48 The Committee notes that initial attempts to develop a stockholding policy in 1963 were confounded by a lack of appropriate

[40] Defence, Submission, p.12.

[41] Defence, Submission, p.13.

[42] Defence, Submission, p.13.

endorsed strategic guidance and endorsed war materiel usage rates. Almost 30 years later endorsed contingency activity levels and usage rates - which form the essential basis for determining reserve stock requirements from preparedness objectives - are yet to be established.[43]

Effect of Preparedness Policies on Australian Defence Force Stockholdings

1.49 The Defence studies on ADF preparedness have provided a conceptual framework for examining stockholding issues. The emerging ADF preparedness policy - and its application - adopts a reasoned approach to the use of allocated resources to meet what are said to be credible contingencies. However, considerable risk is involved - if the theory of credible contingencies is proved wrong by events in the future, the Defence Force will be ineffective.

1.50 Long periods of low threat strategic guidance have not justified significant ADF holdings of reserve stocks. Within the single-Services, the traditional approach towards operating and reserve stocks has undergone change as a consequence of Government policy and resource constraints. Attempts have been made to provide for a surge capability within operating stock levels.

1.51 Defence has determined that, under present strategic guidance and if the ADF can be confident that additional resources can be acquired within the warning time for higher levels of threat, traditional reserve stockholdings do not need to be maintained with the ADF. Stockholdings are not considered as a separate issue but as one of several types of resource within ADF preparedness.

1.52 The Committee has major reservations about how the preparedness objectives are being defined and achieved. Also, there are inconsistencies between the role the ADF is being equipped for and what it is required to do.

1.53 The Committee does not disagree that judgements are necessary in developing preparedness objectives and capability criteria. However, the risk factor becomes unacceptable when planning is based

[43] Defence, Submission, p.13.

on the lower end of the spectrum for credible threat and resource levels are also minimised.

1.54 In the absence of knowledge on what low level contingency may arise, preparedness needs to address the higher end of the threat spectrum. The indications are that present ADF policies and resource levels will result in a core force of designated units equipped and maintained at the expense of lower readiness state units. United Nations commitments are making heavy demands on ADF resources, are highlighting deficiencies in current planning and resource levels and are impacting on ADF capacity to meet even low level contingencies.

1.55 Preparedness objectives should be directed to the higher level of credible threat and high priority should be allocated to providing the reserve stock and equipment component of unit capability criteria to meet those objectives. Ultimately, the difference between the higher and lower preparedness state units should only be in the levels of training and the categories of reserve stock allocated.

Recommendation 1

The Committee recommends that Defence take immediate action to procure the reserve stock and unit equipment components necessary to meet capability criteria.

1.56 The lack of accurate activity levels and usage rates should not prevent judgements being applied in developing the sustainability and stockholding policies. The data can be refined and the policies amended when more accurate information becomes available. It is important that the policies be developed and implemented without further delay.

Recommendation 2

The Committee recommends that judgements be applied in determining activity levels and usage rates appropriate to the highest level of credible threat, and that the policies be developed without further delay.

1.57 The nature of present and future United Nations commitments and their impact on ADF planning and resources are

matters for separate and urgent consideration by Defence.

Recommendation 3

The Committee recommends that separate provision be made for a range of United Nations commitments which would be acceptable to and agreed by the Government and that funding be provided as an extension to the Defence budget.

CHAPTER TWO

AUSTRALIAN DEFENCE FORCE PROCUREMENT

Inventory Investment

2.1 The level of inventory investment by the armed forces depends on factors such as strategic guidance, force structure, industrial capacity and times to access external supply sources. The ADF inventory currently comprises 1.15 million different items and an investment of $5 billion.[1] The inventory investment represents 52 per cent of the 1991 Defence Budget.[2]

2.2 Comparisons between the stock value and annual stock turnover of the ADF inventory and those of allied nations are shown at Table 1.[3] See explanatory notes on the following page.

Table 2.1
Comparison of Defence Stock Values and Turnover

	Stock Value			Annual Stock Turnover		
Serial	Nation (a)	A$ (b)	% of Annual Budget(c)	A$ (d)	% of Annual Budget(e)	Stock Turnover Ratio(f)
1	Australia	5b	52	1b[4]	10.5	5.0
2	United States	380b	106[1]	32b[5]	9	3.6[8]
3	Great Britain	26b	47[2]	21b[6]	45	1.2[9]
4	Canada	9.9b	68[3]	1.7b	12.5	5.8
5	New Zealand	0.66b	67[3]	0.14b	14	4.7

1 Defence, Evidence, p.133.

2 Defence, Submission, p.40.

3 Based on information provided by Defence, Submission, pp.40-42.

Explanatory Notes

1. The US stock value includes all unit holdings of Principal Items and is overstated in relation to the corresponding ADF figure. ADF stock value excludes material in use.

   Removing Principal Items from both sets of data reveals more comparable stockholding data - A$116 billion and 31 per cent of the Defence budget for the USA and A$2.9 billion and 30 per cent for Australia.

2. The Great Britain stock value does not include ammunition, fuel or food held in storage but not in use.

   Readjusting the ADF figures to provide a more accurate comparison results in A$3.95 billion and 41 per cent of the Defence budget for Australia against A$26 billion and 47 per cent for Great Britain.

3. The Canadian and New Zealand stock values include some operational level holdings not incorporated in the ADF figure. Adjusted figures are listed not available. It is unlikely that adjustments would reduce the Canadian and New Zealand percentage figures to below that of Australia.

4. The Australian annual stock turnover figure represents the value of replenishment procurement. Capital project procurement is excluded.

5. The US annual stock turnover calculation has been made against the adjusted stock value of A$116 billion. (Note 1)

6. The figure for Great Britain is obviously excessive; it is known to include the value of disposals at least.

7. Stock turnover ratio is stock value (column b) divided by the annual stock turnover value (column d). It expresses stock held in terms of a number of years of replenishment funding. It is an average over all stock.

   Commercially available commodities will have much higher ratios. Insurance items and significant repairables will have very low ratios. Life-of-type requirements are bought at the project stage.

8. The US stock turnover ratio of 3.6 has been calculated from the adjusted stock value figure of A$116 billion.

9. The Great Britain stock turnover ratio is distorted by the excessively high annual stock turnover figure.

Australian Defence Force Capital Project Acquisition

2.3 Since the early 1970s, recommendations to the Government on the maintenance and development of force structure and capabilities have been prepared and examined within the framework of a five year program. The system includes the preparation of an annual planning document known as the Five Year Defence Program.

Project Proposals

2.4 Major equipment proposals initiated within Defence include a general statement of capability, the likely solution and the justification. Each proposal is examined to determine whether it should be further refined and included in the overall departmental programming process.

Program Development

2.5 Annually, the broad policy options for defence capital acquisition programs are presented to the Government. The options indicate the levels and types of capabilities that can be maintained and acquired under financial and manpower planning assumptions. Subsequently, Government guidance on the broad planning base for the five year period is used for detailed program development. The new major equipment program, together with the other departmental bids for resources such as manpower, facilities and operating costs, defines the mix of resources required to achieve the Government's policy and capability objectives in quantitative and financial terms. Year One of the five year program provides the basis for the annual Defence Budget.

Defence Committees

2.6 Within the Defence program development phase, a committee system is utilised to ensure that diverse and competing interests are considered. The major committees involved in the capital acquisition process are:

a. The Force Structure Policy and Programming Committee,[4] which participates in decision making on the development of the force

[4] Defence, Submission, p.27.

structure, major equipment proposals and the five year program; and

b. The Defence Source Definition Committee, which early in a project, endorses an equipment acquisition strategy and recommends the preferred source of supply.

2.7 The equipment acquisition strategy, established prior to project approval, defines and sets target completion dates for critical activities, planned approvals and the in-service dates for the new equipment. Major review points are nominated and action authorities are identified.

Industry Involvement

2.8 Contact with industry occurs during the Invitation to Register Interest, Request for Proposal and Request for Tender processes. The type and complexity of a project will dictate whether all three of the processes are to be used. The Request for Tender is issued after Government approval has been given to the project and industry involvement intensifies at that point. After tenders are received, tender evaluation and source selection takes place. A final source selection is recommended for Government decision and, if approved, the contracts are negotiated and finalised.

Project Financial Arrangements

2.9 Within the project development phase, judgements are made on the distribution of project funding between the procurement of the new system and its support needs.[5] At project approval, separate budgets are allocated to sub-elements of the project with consequent inflexibility to react to changes, including price increases, during project procurement.

2.10 Life cycle costing and modelling techniques are used to assess the impact of alternative project support decisions and the funding options. The initial support decisions involve the use of assumptions and require refinement during the in-service life of the new equipment. Adjusting the level of support stocks procured initially is a

[5] Defence, Submission, p.34.

strategy adopted by project teams for managing project cost growth. It is during the in-service life of the new equipment that more accurate data on operating conditions and equipment reliability becomes available and the appropriate balance for support is established.[6]

2.11 The nature of spares support decisions during capital project acquisition results in both deficiencies and surpluses in the level of support provided. The deficiencies are identified and corrected during in-service operation of the new weapon systems. Foreign Military Sales (FMS)-sourced surpluses can be adjusted by arrangement with the US Services but most surpluses are disposed of through inventory reduction programs and major equipment disposal action.

2.12 The Committee is concerned that an adjustment process does not exist for capital project items procured from commercial sources and later found to be surplus to ADF requirements. Commercial and FMS contracts for capital and support equipments should provide for the return for credit of those support spares found to be surplus to requirements within five years of delivery into service of the new capital equipment.

Recommendation 4

The Committee recommends that commercial and Foreign Military Sales contracts within capital equipment projects include specific clauses which permit the return for credit of support spares identified as surplus to requirements within five years of delivery into service of the new capital equipment.

Centralised Procurement Activities

2.13 Centralised procurement within the single-Services has, as its basis, the need to provide in-service support for equipment with high levels of technical complexity and sophistication. Much of the support is obtained from overseas manufacturing and supply sources. Equipment configuration, technical and performance specifications, manufacturing processes and standards, item cost and delivery

[6] Defence, Submission, p.34-5.

schedules are considerations in selecting local and overseas suppliers.

2.14 The Logistics/Support Commands conduct annual procurement activities within the program management and budgeting system. Annual programs are developed for Force Elements and related weapon systems support through bids for and funds allocations within the ADF maintenance votes.[7] The replenishment procurement programs are examined and approved within the departmental five year program processes and the annual budget. The procurement activities include minor capital equipment purchases, ammunition and vehicles but the major emphasis is given to maintaining the necessary support for in-service equipment.

2.15 The replenishment procurement procedures utilise the 'forward ordering review period' which enables order action and deliveries to be achieved just before available stocks have been consumed. The use of that technique for items which record demand or usage date, stock balances, order and delivery histories permits the computing system to calculate reorder and short-of-stock levels. Reports and provisioning reviews produced for the item managers permit prompt procurement action to be taken. Diagrammatically, the annual movement of stock levels caused through usage and deliveries is represented by a series of saw tooths. The successful use of the forward ordering review period to avoid stock-out situations and to minimise physical stockholdings is dependent on the accuracy of the leadtime data.

2.16 Other procurement techniques used within the Logistics/Support Commands include economic order quantity, minimum order quantity, manufacturer's pack quantity and, where appropriate, economic production quantity.

2.17 ADF replenishment procurement activity is resource constrained but is responsive within present strategic guidance. The procurement practices and techniques used and being introduced are appropriate but lack necessary flexibility and Electronic Data Processing (EDP) systems support. The systems do not have the capability to respond effectively, in comparatively short warning time, to changes in supply source and contractual arrangements.

7 Defence, Evidence, p.47.

2.18 Within the Services' supply systems, variations in supply leadtimes are evident from procurement actions. A structured monitoring system does not exist. Production schedules for strategic items are not monitored as a matter of routine. The supply systems are not proactive with respect to local or overseas influences on leadtimes.[8]

Recommendation 5

The Committee recommends that Defence arrange for the development within supply systems redevelopment projects of a system to actively monitor production and supply lead times for combat oriented and other important stock items.

Logistics Support Agreements

2.19 Government to government agreements, including the US FMS system, can provide the benefits of shorter leadtimes and reduced inventory investment.

2.20 Australia has in place a regime of international logistics arrangements with a number of countries, ranging from non-legally binding memorandums of understanding to logistics support agreements of treaty status.[9]

2.21 Bilateral cooperative defence logistics support agreements, which are reciprocal government to government agreements of treaty status, are in place with the United States and New Zealand. The agreements allow the signatories' forces to access each other's inventories either on payment or replenishment basis. The agreement with the US does not replace FMS provisions for routine or normal requirements, but is meant to support exercises, deployments and operations.[10]

2.22 Non-reciprocal memorandums of understanding, generally not legally binding in international law, are also in place with Belgium,

8 SSRP is discussed in Chapter 4.

9 Defence, Submission, p.136.

10 Defence, Submission, p.136.

Canada, Denmark, France, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom. These are generally case-specific, providing Australia with assurance of continued supply and support for particular equipment acquired from those countries.[11] As an example, the Memorandum of Understanding with Germany covers repairs to particular weapon systems of the Leopard Tank.

2.23 Non-reciprocal logistics support arrangements, not legally binding in international law, are in place with Vanuatu, Solomon Islands and Tonga. The status of a similar arrangement with Fiji is under review. The arrangements allow the defence or paramilitary forces of these nations to purchase materiel, maintenance support or other assistance from the ADF logistics system where this can be done without detriment to the ADF.[12] A supply support arrangement with Papua New Guinea has similar provisions.

2.24 The Committee believes that too much reliance is placed on government to government agreements which provide no guarantees but are used to justify reduced ADF stockholding levels. The agreements do not record that support will be provided at times of high level threat or continue when Australia's political position is in conflict with that of the supplier nation. The bilateral agreements provide for support for exercises, deployments and operations but not specifically for countering major threats to Australia or within its region. Like the FMS and non-reciprocal agreements, the bilateral agreements represent a pledge of 'best effort' without detriment to national interests. The Committee does not propose that the agreements and support arrangements be discontinued.

Recommendation 6

The Committee recommends that Defence examine objectively alternative logistics support arrangements including new supply sources, indigenous production and the maintenance of strategic reserves in order to reduce the level of dependence on government to government agreements as a single supply source.

11 Defence, Submission, p.136.

12 Defence, Submission, p.136.

Procurement of Munitions Requirements

2.25 ADF requirements for new types of munitions, including ammunition, guided weapons and missiles, are approved and procured under the capital equipment acquisition processes within Defence. Similarly, proposals involving the procurement of reserve stocks are considered within those processes.[13]

2.26 The replenishment of operating stocks of munitions is initiated within annual programs prepared jointly by Service Office and Logistics/Support Command staffs. The replenishment programs and funding requirements are processed within the program management and budgeting system.

2.27 Approximately 55 per cent of the total number of line items of ADF ammunition is manufactured in Australia.[14] In terms of value, these items represented about 65 per cent of munitions purchases in FY 1991/92. A small proportion (about 5 per cent) of components of Australian manufactured ammunition is of overseas origin. If guided weapons and missiles are excluded, approximately 57 per cent of the line items - representing about 80 per cent of costs - is manufactured in Australia.

2.28 The long-term agreement being negotiated with Australian Defence Industries will retain in Australia the capability to manufacture most of the strategically important types of munitions below 155 mm, other than guided weapons and missiles.[15]

2.29 Judgements on force structure and preparedness relate to the best affordable mix to generate desired military capabilities. The ADF possesses and plans to extend its inventory of modern and effective weapon systems while stockholdings of key weapons remain resource-constrained. Arguably, the Harpoon missile is one of the most important missiles within the ADF inventory with respect to the sea-air gap. It is apparent that because missiles are procured through FMS and provision exists to expedite orders and deliveries, Defence has

13 Defence, Evidence, pp.335-6.

14 Defence, Submission, p.128.

15 Defence, Submission, p.128.

minimised investment and stockholding levels for such items.

2.30 The Committee believes that the ADF cannot rely upon the ready availability of significant items such as missiles, either at short notice or even within a warning time, for higher level threat. The supply leadtimes are from two to four years. ADF requirements and priorities would be in competition with those of other users and, in a worst case, may not be agreed to by the supplier nation. The decision to minimise stockholdings and to depend largely on the international support agreements represents too high a risk level.

Recommendation 7

The Committee recommends that in regard to long lead items, Defence examine alternative supply arrangements, including new sources of supply, indigenous production or the maintenance of strategic reserves.

The Just-in-Time Approach to Procurement

2.31 The 'Just-in-time' or 'zero inventory' approach was introduced by Japanese car makers in the 1950s. When the just-in-time approach is used correctly, materials are delivered to meet known production schedules. Savings flow from reduced inventory. Just-in-time has been applied successfully in the manufacturing environment where future demand can be determined with confidence, and where close contractual and working arrangements with suppliers can be put in place to guarantee responsiveness. In the ideal just-in-time environment, optimum total inventory occurs at near zero.[16]

2.32 While the ideal just-in-time environment does not equate to the fluctuating demand patterns and 'just-in-case' segments of the ADF inventory, variations of the just-in-time principle are being used within the single-Services. At bases, the direct procurement of commercially available items from local sources, either under period contracts or through the credit card system, has reduced base stockholdings. This arrangement will expand further as the Services' stores depots and supply battalions are rationalised and more procurement responsibility

[16] Defence, Submission, p.44.

is divested to bases.[17]

2.33 The use of the forward ordering review period (saw tooth effect) within centralised procurement is a broad application of the just-in-time principle to items with longer leadtimes. New stocks are scheduled for delivery just-in-time to replenish consumed stock. The process maintains a flow of items from suppliers to the ADF rather than large shelf stocks.

2.34 With respect to the application of the just-in-time principle by defence forces overseas, the Committee was advised that the Japanese Self-Defence Force does not apply the just-in-time principle to defence stockholdings. According to the Defence Agency in Tokyo, stockholdings are maintained at the minimum level consistent with the goals of economy, efficiency and effectiveness.[18]

2.35 In Canada, the United States, Great Britain and New Zealand, the just-in-time principle is being applied to maintenance contracts and readily available commercial pattern spares and commodities.[19] The ADF also applies just-in-time to contractor spares support within maintenance contracts. Contractor spares support arrangements exist for the B707 aircraft, F/A-18 radars, Blackhawk engines, Falcon aircraft, Squirrel helicopters, the Defence commercial vehicle fleet and for operational vehicles supplied by Mack, Mercedes Benz and Rover.[20]

Australian Defence Force Inventory Reduction Initiatives

2.36 Since 1986, the Army has conducted an Inactive Inventory Review Project which has resulted in about 20 per cent of the inventory being either disposed of, or otherwise adjusted. In 1988, the Navy established an Inventory Optimisation Program which has achieved significant disposal action. The Air Force used a number of computer

[17] Defence, Submission, p.46.

[18] Defence, Submission, p.43.

[19] Defence, Submission, pp.43-4.

[20] Defence, Submission, p.46.

systems to initiate the selection and disposal of support spares for weapon systems phased out of service during the 1970s and 1980s. The introduction of the automated disposal management system - Executive Level Computer Initiated Disposal (ELCID) - permitted the selection of non-moving items for disposal on a routine basis. The system also supports major equipment disposal programs such as the disposal of DC3 spares maintained for Papua New Guinea support under a government to government agreement.

2.37 The specific results of the single-Service inventory reduction initiatives are recorded in Table 2[21]

Table 2.2
Summary of Inventory Reduction Programs

Action Taken	Navy	Army	Air Force	Totals
Disposal Action Complete/Accounts Closed	140,000	38,000	254,000	432,000
Items Identified for Disposal	240,000	22,000	50,000	312,000
Items Identified for Part Disposal		4,100		4,100
Disposal Action Initiated	190,000			190,000

21 Defence, Submission, p.61.

CHAPTER THREE

TRANSPORTATION

3.1 In elaborating on his 1990 Defence Fellowship paper, *A Difficult Relationship - Defence and Civilian Transport Industry Relationships Since 1945*, Brigadier G J Christopherson, AM(Retired), highlighted what he considered to be the major transportation issues. The first was the emphasis that needed to be given to the transport infrastructure capabilities when determining Defence stockholding policies. The second related to the adequacy of Federal, State and commercial transport industry involvement in defence strategic planning - for low level contingencies and more substantial threat.

Transportation Aspects of Stockholding Policy

3.2 There is no disagreement that transportation - together with engineering, maintenance and supply - contributes to overall logistics effectiveness.[1] Within the Services, transportation leadtimes are incorporated in the algorithm for replenishment procurement and for the maintenance of stock levels at units.

3.3 In civilian logistics, the distribution aspect is considered to be as important as warehousing and inventory management. Logistics is defined as the management of the flow of material from the point of raw material to the point of final consumption.[2] The location of stocks and the transportation capability to distribute the stocks are major factors in logistics effectiveness and, therefore, operational effectiveness. The Defence Logistic Strategic Planning Guide records, as its first objective, that all logistics activities are to be related to operational needs.[3] The May 1990 Defence Logistics Redevelopment Project (DLRP) task force report on the DLRP proposals recorded, as guidance, the provision of support stocks from facilities in the south and south-east of Australia for ADF operations in the north and north-west. Inherent

1 Defence, Submission, p.63.

2 Brigadier Christopherson, Evidence, p.83.

3 Defence, Evidence, p.13.

in the storage rationalisation proposals was the requirement for a more capable, responsive and flexible transport system.[4]

3.4 The argument made to the Committee was that operational concepts must also relate to logistics realities.[5] If the means are not available to transport sustainability stocks - regardless of whether or not such stocks are or can be made available in the southern support area - the operational concept will need to be changed.[6] Change would be necessary either in the location of stocks - part of the stockholding policy deliberations - or in the transportation capabilities necessary to meet appropriate levels of conflict.

3.5 The Defence position is that:

> there is NO doubt that, given more substantial conflict, greater emphasis would need to be given to all aspects of the transportation infrastructure. But this is not in prospect, and does not warrant priority.[7]

Recommendation 8

The Committee recommends that within the development of Australian Defence Force preparedness and stockholding policies, Defence address the mix of resources, the strategic location of stocks, the distribution needs of the Australian Defence Force and the likely effects of threat levels on the continued responsiveness of supply sources and civil infrastructure arrangements.

3.6 The Committee was informed that operations in the north were to be supported by warehousing accommodation in Townsville and Darwin and bare base staging facilities at Mt Isa, Broome and Alice Springs.[8] These plans indicate that an appreciation of limited transport

4 Brigadier Christopherson, Evidence, p.82.

5 Brigadier Christopherson, Evidence, p.83.

6 Brigadier Christopherson, Evidence, p.84.

7 Defence, Submission, p.65.

8 Defence, Evidence, pp.140-1.

infrastructure capability is being reflected in emerging Defence stockholding policies.

Inadequacies in Planning for Future Defence Operations

3.7 The level of conflict of most concern to Australia is low level conflict. This could arise over a short period because the capabilities for such conflict do exist in Australia's region of strategic interest. More substantial levels of conflict are seen as unlikely to arise without warning, and would probably be accompanied by a period of national mobilisation and legislative activity. A national reaction is unlikely to occur for low levels of conflict.

3.8 The Committee was informed that there was a lack of involvement of the civilian transport industry and other government departments in the preliminary planning stages for future defence operations.[9]

3.9 Defence preparations for the use of civilian transport in low levels of conflict include the establishment of memorandums of understanding with principal organisations within the four modes of transport (road, rail, sea and air).[10] Working relationships between elements of Defence and the transport industry are based on regular contact.[11] Liaison with other departments is at the administrative level.[12] Australia's major allies, faced with similar policy concerns, elected to take specific procedural steps to deal with the grey area of low level or low intensity conflict. The factors considered in the United States apply equally to Australia and it would seem prudent for Australia to take similar action. The Defence view is that, until recently, the major allies have faced a much more substantial preparedness requirement. Within Australia, the degree to which preparedness (and its associated costs) should be pursued is arguable in the context of a

9 Brigadier Christopherson, Evidence, pp.83-4.

10 Defence, Evidence, p.158.

11 Defence, Submission, p.76.

12 Defence, Submission, p.67.

low level threat.[13]

3.10 The present approach of using warning time to ensure the availability of adequate civilian transport support for higher level conflict contains an inherent risk factor. However, the introduction of legislation which would provide Defence with the power to acquire civilian transport assets compulsorily is dependent on the provisions of Section 51(vi) of the Commonwealth Constitution. Considerations within Government would determine whether Defence needed to invoke the legislated Defence powers.[14] The assessment is that, in low level conflict, Defence could not rely on the use of those powers. Transportation requirements would be regarded as tasks to be met by commercial arrangements.[15]

3.11 The proposal put to the Committee was that, in the absence of Defence Power legislation, a system should be introduced which:

a. ensures the involvement of all government and private agencies associated with the planning and operation of civilian transport infrastructure and assets;

b. increases awareness of defence strategic transport planning and the requirements in likely low level conflict scenarios;

c. results in contingency plans appropriate to respective areas of administrative responsibility or technical expertise, and ensures that defence requirements can be met with minimum disruption to the national economic requirement for transport support;

d. makes national security an issue that is seen to extend beyond the responsibilities of Defence;

e. provides a much firmer and realistic basis for defence planning and reliance on the civilian transport infrastructure; and

f. creates closer links between the defence organisation and the civilian industry with consequent flow-on of expertise and knowledge to both areas.[16]

13 Defence, Submission, pp.68-9.

14 Defence, Submission, p.69.

15 Christopherson (1990), p.109.

Without such departmental and community involvement, defence requirements would continue to be regarded as issues of little priority until a conflict arises.

Problems to be Addressed

3.12 Except when some benefit is implied,[17] defence requirements attract a low priority in transport infrastructure planning at national and regional level. The view of other departments involved in transport planning at the Federal or State level is that defence planning, in a time of no discernible military threat, is not a matter they should be concerned with as part of their portfolio responsibilities. By contrast, much closer coordination and consultation exists between governmental agencies in the UK, USA and Canada. Funding provisions are in place for defence involvement in civilian infrastructure projects.[18]

3.13 The involvement of the civilian transport industry in defence strategic planning is minimal. Arrangements exist for consultation on specific requirements but the arrangements are predicated on plans already developed by defence staffs. Most senior industry executives accept that it is in the national interest for them to be more directly involved in defence planning at the highest level.[19]

3.14 Defence involvement in civilian transport infrastructure planning is limited. Present constraints on the defence budget make it unlikely that defence funding would be available for transport infrastructure development even if Defence considered it desirable to contribute. Nevertheless, the national transport infrastructure planning process needs to take account of defence, as well as economic

16 Christopherson (1990), p.110.

17 Defence, Submission, p.72.

18 Christopherson (1990), p.111.

19 Christopherson (1990), p.112.

considerations at the Federal, State and local levels. In particular, formal consultative arrangements need to be strengthened at the national level between Defence and the Department of Transport and Communications and, at the State level, with the various departments of transport.[20]

3.15 Although the civilian transport industry has the capacity to provide support for defence operations in low level conflict, it is important that the procedural aspects of such support are clearly understood by the Federal and State governments, and within the civilian transport industry. The present memorandums of understanding between Defence and the various transport modes warrant further development to:

a. include Federal and State departments involved in the national and regional transport planning process; and

b. provide procedural processes binding on Federal, State and civilian transport industry organisations.

Defence is considering these development proposals in its examination of refinements to the memorandums of understanding.[21]

3.16 The issue of ADF/trade unionist relationships has been resolved on the basis that Defence contracts with the company to provide a service and not with the trade unions represented in the company work place. Corporate clients would not normally be embroiled in industrial relations issues and Defence should not be different.[22] However, in some operational situations the potential will exist for problems to arise between contractor employees and ADF uniformed personnel who may be giving directions with the expectation that the directions will be obeyed. It is important that discussions between the contractors, trade union and uniformed ADF personnel establish common ground and mutual understanding on the problems likely to

20 Christopherson (1990), p.114.

21 Defence, Submission, p.78.

22 Defence, Submission, p.80.

occur in operational situations.[23]

3.17 The Committee does not agree with the stated Defence position:

> There is NO doubt that, given more substantial conflict, greater emphasis would need to be given to all aspects of the transportation infrastructure. But this is not in prospect, and does not warrant priority.[24]

DOA87 specifically states that Defence needs for civil infrastructure support involve legislative, administrative and operational aspects.[25] Also, the concept of warning does not imply a Defence force that is static until a threat has materialised.[26] The civil transport infrastructure needs for higher level conflict should be incorporated with arrangements in development for lower levels of threat. This action should be taken immediately.

Recommendation 9

The Committee recommends that Defence take immediate action to initiate Defence Power legislation and to develop civil transport infrastructure and industry support arrangements which are responsive to all levels of national emergency.

23 Christopherson (1990), p.115.

24 Defence, Submission, p.65.

25 DOA87, p.68.

26 DOA87, p.29.

CHAPTER FOUR

MANAGEMENT SYSTEM

Defence Electronic Data Processing System Development

4.1 The major Electronic Data Processing (EDP) systems were developed within the Defence EDP Project in the 1960s. Differences in priorities, system requirements and development methodologies resulted in the development of single-Service systems in the key areas of personnel, finance and supply. The development and enhancement of the separate systems continued into the late 1970s.[1] In 1977 conversion of the single-Service systems was necessary to transfer computing operations from the aged Honeywell equipment to new Sperry Univac computers.

4.2 Separate minicomputer systems were developed for Navy and Air Force stores depot operations. The Air Force minicomputer system for base supply functions was adopted by the Navy. The Army developed a number of minicomputer and microprocessor systems to support supply activities. A minicomputer system was also developed to manage Air Force maintenance activity at bases.

Proposals for Common Supply System Development

4.3 In the mid-1970s Defence sponsored a proposal to develop a tri-Service EDP supply system. The proposal lapsed due to the lack of resources and the priority allocated to the Honeywell-Sperry Univac conversion project. However, the limited benefits obtained through the $800 million[2] conversion project prompted renewed Defence and Service interest in the common supply system redevelopment proposal.

4.4 In 1982 a Business Review Working Group (BRWG) carried out an examination of the Services' existing supply systems and deficiencies and noted:

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1 Joint Committee of Public Accounts (JCPA), Report 317, p.22.

2 JCPA, Report 317, p.22.(Note 2)

a. a lack of computer systems was preventing effective resource management;

b. the existing systems were focussed on the needs of the individual Services and not Defence as a whole; and

c. at all organisation levels there was inadequate interfacing of existing systems.

The BRWG saw that there was a pending need to replace many systems. Minicomputers needed to be replaced in the late 1980s and early 1990s. The Sperry Univac mainframe computers needed to be replaced in the mid-1990s.[3] There was also some appreciation that EDP systems had a finite life and that system redevelopment needed to be incorporated in departmental Automatic Data Processing (ADP) strategic and resource planning.

4.5 The findings of the BRWG were considered by the Defence Force Development Committee which agreed, in April 1983, that the most cost-effective approach was to embark on a Joint-Service development/redevelopment of common core supply systems under Defence management and in accordance with an approved supply ADP strategic plan.[4]

4.6 The need for the new supply systems to interface within and between organisation levels, and to communicate with other Defence EDP systems, resulted in a request that standards, conventions and protocols be established for use within the supply projects and in future EDP systems development. The Defence EDP System Integrated Network Environment (DESINE) was created, initially, to meet that need.[5]

Supply Systems Redevelopment Project

4.7 The Supply Systems Redevlopment Project (SSRP) is a large and complex project which is designed to replace and redevelop the supply systems of the Navy, Army and Air Force on a common basis.[6]

4.8 At present Navy, Army and Air Force have their own supply computer systems. Maintenance of the systems is manpower intensive, comprehensive business coverage is not available and interfaces to technical and finance systems are deficient. The current supply systems make inventory management a difficult task. They are not conducive to modern management practices and cannot provide the integrated information needed to manage weapon systems.

4.9 SSRP is intended to introduce nationwide, on-line systems which will be linked to the Department's finance system to improve budgetary planning for purchasing. It will also interface with other systems such as the Services' equipment maintenance programs. In addition, it will introduce some modern warehousing technologies, such as bar coding and portable data entry devices.

4.10 SSRP consists of a number of elements. The largest element - which has the greatest impact on stockholding - is the Standard Defence Supply System (SDSS). SDSS will support purchasing, inventory management and control and warehousing at the logistics and support commands and the supply depots and bases of the Services. The systems will be based on a commercially available software package to keep abreast of improvements in commercial supply practices.

4.11 Defence believes that SSRP will contribute to more effective stockholding practices in the areas of requirements determination, asset visibility, inventory reduction and single-Service logistics management.

Requirements Determination

4.12 The current systems are deficient in two main ways. Firstly, demand forecasting is not effective. For example, stocks of items are held in store as a buffer or insurance against higher than expected usage or delays in restocking. Levels of these buffer stocks are inappropriate because the forecasting techniques in the current systems are not sufficiently flexible or sophisticated. SDSS will supply various algorithms from which the most appropriate forecasting techniques for

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3 JCPA, Report 317, p.22.

4 JCPA, Report 317, p.23.

5 JCPA, Report 317, pp.5-6.

6 Defence, Evidence, pp.134-8.

each item can be chosen. This is expected to reduce the stock levels. Secondly, the requirements determination information generated on current systems for the logistics support commands is not provided for the managers at depots and bases. SDSS will provide a single central record for asset information and access to that information will be provided for all approved users of the system.

Asset Visibility

4.13 Under current arrangements, each Service's stockholdings are invisible to the other Services. Stock assets at one depot are not visible to other depots. SDSS will provide a capability to locate all assets through the one system. Should a depot be unable to fill a demand in the required time, management will be able to scan the stock levels of other depots and generate the necessary directives to meet the demand.

Reduction of Inventory Holdings

4.14 SSRP is designed to improve warehousing operations by reducing inventory holdings through better procedures for disposal of obsolete and surplus stock. It will also decrease the incidence of wastage of items with a limited shelf life.

Single-Service Logistics Management

4.15 Under the system of single-Service logistics management, one of the three Services assumes management responsibility for a common use item on behalf of the other two Services. Currently, the Service which requires an item must either be given access to the managing Service's supply system or must manually pass a request to the nearest supply unit of that Service. SSRP will reduce the administrative overheads of the present system.

Concerns with Supply Systems Redevelopment

4.16 The Defence Logistics Strategic Planning Guide requires all logistics activities to be related to operational needs. SSRP appears to concentrate on improving supply management capabilities and upgrading techniques. Improvements in the responsiveness of the physical logistics activities was not mentioned by Defence in evidence

to the inquiry. The Committee believes that systems which will reduce the present issue and transportation time-frames and thus improve logistics system responsiveness at the wholesale depot and base levels are critical to the effective support of operations.

4.17 The Committee noted that the US Services encountered problems in pursuing common supply systems development. The common system proposal was abandoned. Communications between the single-Services' systems was achieved through the use of the US Department of Defense-sponsored and managed Military Standard Requisitioning and Issuing Procedures (MILSTRIP) system. The ADF used the MILSTRIP system in Vietnam and currently uses the system to demand items under FMS agreements.

4.18 The supply systems of major allies have remained under single-Service control in terms of inventory management and systems development because of the complexity and resource costs associated with common system redevelopment. Commercial involvement in the specification and development of system software is prevalent, rather than procuring and modifying commercial software applications. Major problems have been encountered with past attempts to modify software. Emphasis is being given to improved responsiveness to operational needs, including automated warehousing facilities for the large holdings of small support spares.

Defence Logistics Redevelopment Project

4.19 The Committee was informed that the Defence Logistics Redevelopment Project (DLRP) will improve the efficiency and effectiveness of logistic support to the ADF.[7] The project will save 1,415 manpower positions and $390 million in operating costs through to the year 2000. The savings are to be achieved through the implementation of three initiatives: fiscal accountability, item management and procurement and the Defence warehousing strategy.

Fiscal Accountability

4.20 Fiscal accountability will give base and unit commanders

[7] Evidence, pp.138-42.

more responsibility for the purchase and use of stores. Commanders will be provided with visibility of the value and quantity of resources consumed, enabling consumption to be more effectively managed. This action will lead to reduced consumption in discretionary areas such as common consumable or domestic stores. Related initiatives within the single-Services will permit local purchasing to replace centralised procurement and storage. Items which are readily available from commercial sources will be purchased locally and delivered direct to the user sections. Where applied, this concept will eliminate a level of stockholding and reduce the workload at stores depots.

Item Management and Procurement

4.21 This initiative will extend the application of single-Service logistic management arrangements. In addition to existing Air Force responsibilities for aircraft and aviation spares and Army responsibility for small arms and medical and dental stores, the concept will embrace commodities such as clothing and stationery and wider weapon system application. While this will not significantly reduce stockholdings, it will achieve manpower savings by removing duplicated inventory management tasks in the single-Services.

Defence Warehousing Strategy

4.22 The Defence warehousing strategy involves structural changes to single-Service warehousing operations and will deliver the majority of the resource savings to be achieved under DLRP. According to Defence, the warehousing strategy will:

a. Eliminate the wholesale level of stock in the Air Force and apply the single tier approach used by the other Services. The Air Force weapon system spares will be relocated from central stores depots in Toowoomba in Queensland, Regents Park in Sydney and Tottenham in Melbourne to operational bases. The central stores depots will be closed. With moderate increase in storage and some improvement in material handling systems, the spares from the depots will be allocated with maintenance activities that support each weapon system - for example, the F111 spares will be stored at Amberley which is the operational and maintenance base for the aircraft. With dispersal of the weapon system spares to the bases and the storage and local procurement initiatives, the Air Force will have little inventory to be held at a central location. Centralised storage will apply to a small number of items with common application and bulky or slow moving items. This strategy is also intended to upgrade the regional logistics infrastructure used by Navy and Army.

b. Provide Navy with warehousing accommodation in Perth to support the fleet elements that are moving to the west under the two-ocean basing policy. Accommodation will also be provided at Nowra so that Navy aviation spares can be held forward, similar to the concept being applied to Air Force aviation spares.

c. Provide warehousing accommodation for Army regional logistics units which have been rationalised by the consolidation of dispersed stores locations and maintenance, transport and supply functions.

d. Provide warehousing accommodation in Townsville and Darwin, and bare base staging facilities along the three main lines of communication at Mt Isa, Broome and Alice Springs, to support operations in the north.

The Defence National Storage and Distribution Centre (DNSDC), established primarily at Moorebank, will hold most of the Navy stock currently stored at Zetland and Randwick, the bulk of the Army national level storage, and that part of the Air Force inventory that must be stored centrally.

4.23 DLRP is expected to make significant changes to the ADF logistic system. Of particular interest to the Committee was the claim that DLRP will reduce ADF stockholding through the rigorous review of current inventory that will occur as user requirements for new facilities are developed and by providing mechanisms for direct sourcing of stores from the commercial infrastructure.[8]

4.24 The claim that DLRP will eliminate the wholesale level of stock is not consistent with the retention of the Moorebank facilities and intention to create the very large DNSDC. The disposal of the single-Service wholesale depots precludes a Defence fall-back position if

[8] Defence, Evidence, p.142.

major fire or other damage occurs to the DNSDC and particularly if the new centre proves to be too large and cumbersome.

4.25 Manufacturing and materiel distribution facilities reach the growth point where optimum efficiency in operations is achieved. Further growth is accompanied by a decline in efficiency and effectiveness. Commercial organisations break up such facilities when they become too large, 'bottle-necks' in routine operations cannot be overcome and efficiency is lost.

4.26 The Committee does not agree with the DLRP plan to create the very large DNSDC facility which is contrary to normal commercial practice. The plan, based on wholesale warehouse rationalisation rather than the needs of the ADF, is unacceptable.

Recommendation 10

The Committee recommends that the Defence National Storage and Distribution Centre proposal be cancelled.

Recommendation 11

The Committee recommends that the existing smaller and more reactive wholesale warehouse facilities be retained.

4.27 The location of support spares with specialist maintenance facilities on bases is a realistic approach but one which requires automated warehouse support and a paperless issue environment to prove responsive to customer needs.

Recommendation 12

The Committee recommends that Supply Systems Redevelopment Project and Defence Logistics Redevelopment Project staff jointly investigate and report on the cost effectiveness of installing proved automated warehouse systems and equipment within base and regional warehouses. The potential to achieve improved responsiveness and manpower savings in warehouse operations should be given equal emphasis.

4.28 A description of wholesale and retail level storage and retrieval systems for military application is at Appendix 4. The description provides an appreciation of the level of warehouse automation and resource savings that can be achieved through effective planning and investment in technology.

CHAPTER FIVE

IMPACT OF UNITED NATIONS COMMITMENTS

Government Policy

5.1 Australia's contributions to United Nations peacekeeping and operations are drawn from the ADF's force in being. DOA87 states that the development of the Defence Force for national security provides the Government with the capability for contributions to UN activities.[1] Forces are not developed especially for peacekeeping. Nor are UN operations regarded as force structure determinants.[2]

Current Commitments

5.2 Australia is currently contributing troops to UN peacekeeping forces in several locations. The ADF has 530 communicators serving with the United Nations Transitional Authority in Cambodia (UNTAC) force in Cambodia and 45 Army personnel in Western Sahara (MINURSO). Thirteen observers are stationed in the United Nations Truce Supervision Organisation (UNTSO) in the Middle East. Of these, three were temporarily attached to the UN peacekeeping mission in Yugoslavia (UNPROFOR) where the immediate past head of the Observer Element was an Australian Army officer. Three personnel are attached to the UN Special Commission in Iraq (UNSCOM).[3] In addition, a mine clearance training team is engaged in a non peacekeeping task under UN supervision in Pakistan.

5.3 In October 1992 the Government announced its decision to send a 30-strong movement control contingent to participate in United Nations Operations in Somalia (UNOSOM) and also to provide 16 ADF personnel to the Multinational Force and Observers (MFO) in the Sinai.

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1 DOA87, pp.8-9.

2 Defence, Evidence, p.20.

3 Defence, Submission, p.133.

These troops are expected to deploy by early 1993.[4]

5.4 Australia still has a warship deployed to the Middle East as part of the international naval force maintaining sanctions against Iraq pursuant to resolutions of the UN Security Council.

5.5 Australia's involvement in UN activities has reached its highest level in its history of participation in UN peacekeeping. The Committee believes that Australia will increasingly be called upon to contribute to future peacekeeping activities. While the cost of peacekeeping forces will act as a constraint, it is highly likely that Australia's commitment will rise well beyond the present level.

5.6 The impact on the ADF of Australia's increasing involvement in UN peacekeeping and operations is a matter of considerable concern to the Committee. According to the witnesses from the Department of Defence the impact has not been significant.

Cambodia and Western Sahara

5.7 The Australian contingents participating in UN peacekeeping operations in Cambodia and the Western Sahara are essentially providing communications support. Both the UNTAC and MINURSO contingents have been provided with the range of equipment considered necessary for them to conduct their missions successfully. Accordingly, high technology communications equipment makes up a significant proportion of equipment provided by Australia. This includes a total of 170 RAVEN radios and a full range of ancillary equipment.[5]

5.8 Supply support to the Australian contingents was provided firstly from the units which contributed the bulk of personnel to the UN force. According to Defence, the effect of providing equipment and stores to these forces has not been significant. However, the sponsoring communications units could only meet operational preparedness objectives by transfers of equipment from other units.

5.9 Equipment was transferred to the sponsoring

4 *News from Defence,* DPR 231/92, 19 October 1992.

5 Defence, Submission, p.135.

communications units from longer notice units in the Combat Force or from Logistic Command. It was intended that the transfer be short term. The equipment was to have been returned to the sponsoring unit in Australia following the establishment of communications infrastructure in the peacekeeping areas.[6]

5.10 To ensure that the ADF contingent to the UN forces was equipped with the latest equipment, it has been necessary within Army to revise issue programs for new equipment coming into service, such as the STEYR rifle, Khaki boots and RAVEN radios.

5.11 The issue of RAVEN radios to the Australian contingents caused slippage in issue to low priority units. Consequently, Army revised the allocation of responsibilities for particular communications tasks among force elements. These units have been equipped with superseded equipment.[7] According to Defence, however, there has been no change to the specified completion date for RAVEN issues (March 1993) as a result of issues to UN forces.[8] Nor has there been any acceleration to offset deficiencies caused by UN requirements.

5.12 The issue of the RAVEN equipment to the UN contingents did impact on the Ready Deployment Force. The Committee was concerned to discover that specialist communications support to some administrative elements - which would have been required in the event of a full deployment of the Ready Deployment Force - had been affected.[9]

5.13 Additionally, the readiness of longer notice, lower priority force elements has been affected by the reallocation of equipment to the UNTAC task.[10]

6 Defence, Submission, p.134.

7 The Committee observed that units of 8/9 RAR were equipped with the VINSON Security Communications Equipment during inspections at Enoggera on 19 October 1992.

8 Defence, Submission, p.134-5.

9 Defence, Submission, p.134.

10 Defence, Submission, p.119.

5.14 In its submission to the Committee, Defence stated that sufficient weapons - predominantly the STEYR rifle - were taken to Cambodia and Western Sahara to provide one for each person involved in the UNTAC and MINURSO operations. In Cambodia the issue of weapons to individuals will depend on the assessed threat environment. In Western Sahara, sufficient weapons were taken for each member of the contingent, but these were impounded by the Moroccan authorities. Defence advised that the weapons will be released once the UN has approved the carriage of weapons, which is expected to be closer to the referendum date.[11]

5.15 The situation is clearly more complex than this. The Australian contingent in the Western Sahara was first despatched to join the UN operation in September 1991. Not only were weapons seized by the Moroccan authorities but communications equipment was also impounded.[12] The weapons and ammunition are currently stored with local authorities at Laayoune.[13]

5.16 This situation raises some very important issues. In the view of the Committee, it is intolerable that the Government should allow members of the ADF to remain as part of the UN force in Western Sahara without weapons for their personal protection. If there is an element of risk, the soldiers should be armed. If there is no element of risk, it is inappropriate that ADF communicators should be deployed. Civilian communicators would be more suitable for the task.

5.17 The Committee strongly believes that no unit of the Australian Defence Force should be committed to a UN operation without firm guarantees that equipment will remain with the unit. In the event of a situation such as that in Morocco occurring, the Australian contingent should be withdrawn.

5.18 The Committee is extremely concerned that impounding the communications equipment has given a foreign power access to code

11 Defence, Submission, p.133.

12 *Senate Hansard*, 24 November 1992, p.3265.

13 *Senate Hansard*, 26 November 1992, p.3471. The Committee also learned on 26 November 1992 that the impounded radios have recently been returned to the Australian contingent.

books, procedure manuals and other high security items of the Australian Defence Force.

Recommendation 13

The Committee recommends that no Australian Government should agree to the Australian Defence Force participating in United Nations operations without uninhibited access to agreed Australian Defence Force weapons and equipment.

Recommendation 14

The Committee recommends that, in the event of weapons and equipment being withheld from Australian Defence Force personnel participating in United Nations commitments, without agreement, the units should be withdrawn.

The Gulf War

5.19 The deployment of the RAN Task Group of two FFGs and a replenishment ship to the Gulf region in support of UN sanctions against Iraq (Operation DAMASK) presented the first opportunity for some time for logistic support to be provided at the highest level of operational capability in a location well outside Australia's area of primary strategic interest.[14]

5.20 The deployment of forces required redistribution and additional procurement of assets to meet the requirements of Operation DAMASK. The units deployed to the Gulf were accorded the highest priority and a very high rate of logistic support. As a result units deployed in other areas or those operating around Australia experienced delays in obtaining their requirements.

5.21 Navy received three days notice to despatch the two FFGs and HMAS *Success* to the Gulf. In that time Navy decided that the ships should be fitted with additional items which are not normally carried by those ships. The ships were also fitted with some radar absorbent material, electronic equipment and electro-optical equipment

14 Defence, Submission, p.36.

which was acquired at short notice.[15]

> . . . In order to satisfy all those requirements, we needed to go to industry to get them to speed up the processing of some of the items of materiel which were in the repair process. We did need to procure some additional items. We needed also to look at materiel which was held in other ships which were not being deployed, and by utilising some of the stocks held in those other ships we provided additional materiel to the deploying ships . . . we also fitted other equipment to the ships and the aircraft to fit them for the sorts of activities that we anticipated that they might be involved in.
>
> This was all done in a fairly short period of time: three days . . . We did have some additional time to get other materiel to the ships as they transited west. That materiel was forwarded to Western Australia, because some of it was still coming out of the repair pipeline. Additional materiel was forwarded to Diego Garcia, and once the ships were actually in the Gulf we continued the flow of materiel to them.
>
> At the outset of the notice, we increased the normal demands that we were placing on the American system. We have a pipeline in place under the foreign military sales system, and some of that materiel was forwarded on to the ships in the Gulf as it arrived . . . the majority of the materiel was available.[16]

5.22 The decision to take the RBS-70 missile system detachment on board HMAS *Success* and subsequently on HMAS *Westralia* was a 'snap judgement' made at the time the ships were ordered to the Gulf.[17]

> . . we were facing unique circumstances which required unique answers. The unique answer was to take the RBS-70 and put it on board HMAS *Success* in the first instance, and then subsequently on board HMAS *Westralia*.[18]

5.23 The Committee does not accept that the ADF was facing 'unique circumstances which required unique answers'. In preparing for

15 Defence, Evidence, p.31.

16 Defence, Evidence, p.34.

17 Defence, Evidence, p.224.

18 Defence, Evidence, p.226.

the Gulf War, the ADF could have drawn upon the lessons of the Falklands War. The lessons of the Falklands do not appear to have been applied to any significant degree.

5.24 The operational commander assessed that in the circumstances which pertained to that area the RBS-70s were necessary to ensure that the ships would be operationally viable. The capability of the ships to defend themselves was a crucial consideration.[19]

5.25 Defence admitted that the possibility of fitting RBS-70s to naval ships had not been foreseen. The performance of RBS-70s on an unstable seaborne platform had never been assessed. Test firings were conducted from HMAS *Success* as it proceeded to the Gulf.[20]

5.26 Defence argued that deploying the RBS-70 detachment to the Gulf demonstrated the flexibility of the ADF.[21] The force structure based on low level and escalated low level contingencies does not require Navy to have anti-aircraft weapons on every surface unit. The ships deployed to the Gulf had to make the best use of equipments which existed or could be redirected within the total force.[22]

5.27 Extra RBS-70 missiles were procured to replace stocks sent to the Gulf, and 0.5 inch machine guns were obtained by redirecting stocks held by longer notice force elements.[23] The Navy also drew upon stocks of 0.5 calibre guns held in Perth for the Pacific Patrol Boat Project because they were located close to the deploying ships.[24]

5.28 Contingency reserves of Nuclear Chemical Biological Defence (NCBD) suits are held as part of normal operational readiness planning for the Operational Deployment Force (ODF). The decision to reallocate the ODF's NCBDs to meet the needs of the Gulf caused a reduction in

19 Defence, Evidence, pp.31-2.

20 Defence, Evidence, pp.227-8.

21 Defence, Evidence, pp.226-7.

22 Defence, Evidence, p.226.

23 Defence, Submission, p.36.

24 Defence, Evidence, p.229.

contingency reserves. Defence considered the risk to be slight, given that additional NCBDs were on order. The NCBDs are procured from overseas.

5.29 The Committee disagrees that the flexibility of the ADF was demonstrated by the Gulf War. Basing the force structure on low level contingencies clearly does not equip the ADF to meet the demands of a war of the dimensions of the Gulf conflict in any other than a minimal way. As Dr David Horner points out:

> The commitment raises the question as to whether the ADF has a sufficiently flexible force structure to cope with these sorts of unexpected demands. While the Navy could have deployed more ships to the Gulf, the deployment of two modern combatants and one support ship at short notice for a period of three months was the largest number that could be deployed with any comfort. Thus, considering the level of threat expected in the Gulf, and the fact that the three ships were maintained in the Gulf for a period of over six months, the commitment was at the upper end of the Navy's capacity. With a little more notice perhaps another warship could have joined the Task Group, but at the time planners did not know how long Australia might be required to keep a task group in the Gulf.
>
> . . . The policy of fitting ships for, but not with, specific items of equipment might have been a problem if more ships had been deployed at any one time.[25]

5.30 This situation highlights the problem of DOA87 - preparing for a low level contingencies does not equate with preparing for UN commitments. Conversely, the ADF is ill-prepared for UN commitments on the scale of the Gulf War. On present planning it also affects the capacity to meet low level contingencies to the extent that equipment has been taken and left units unable to perform their assigned tasks.

5.31 Navy's analysis of the logistic support provided during the Gulf War established that standard support procedures are satisfactory and that a very high level of Australian defence self-reliance can be

[25] Horner (1992), p.205.

achieved and maintained during periods of increased operational activity.[26]

5.32 On the basis of evidence provided by Defence, the Committee does not share Navy's confidence. Navy's conclusions are based on the experience of deploying three ships to the Gulf. Navy states that:

> . the remainder of the maritime command continued to operate at normal peacetime levels of activity, and quite successfully, whilst those three ships were deployed in the Gulf. In other words, Government policy was met entirely. We did not stop doing the things we would normally do. There were adjustments in terms of the actual deployments that ships were sent on. For example, the policy with respect to having two ships deployed permanently in South East Asia was varied so that we had some latitude in terms of programming of ships. But the policies for stockholding were not varied per se.[27]

5.33 The Committee believes that the conclusions would have been very different, had Navy participation in the Gulf War involved actual and prolonged combat and involved the loss of lives and equipment. In reality, while the RAN performed professionally and well, it coped with a relatively small UN commitment and a range of equipment deficiencies at short notice. Had there been an unexpected requirement for Naval participation elsewhere, Navy would have been put under very serious pressure and suffered a shortage of equipment.

Observers

5.34 Little logistic support is provided to military observers. For contingents serving on UN commitments, contributing nations are required to outfit the contingent and provide sufficient subsistence items (food, fuel, general stores) until UN logistic support arrangements are established.

5.35 For these commitments the UN reimburses contributing countries for the costs associated with the provision of items approved by the UN to be taken into the mission area. This includes:

a. renovation costs to prepare equipment for UN operations;

[26] Defence, Submission, p.36.

[27] Defence, Evidence, p.36.

b. depreciation charges for contingent-owned equipment;

c. stock consumed in the mission area (the net difference between what was taken and what was brought back);

d. costs associated with losses/discrepancies and write-offs;

e. damage repair;

f. refurbishment and restoration costs of equipment on return from the mission area; and

g. costs of transport to and from the mission area.[28]

Effect on Defence Budget

5.36 The effect on the Defence budget of commitments to UN peacekeeping operations has in the case of Operation DAMASK and Cambodia been offset by supplementation. $96.4m was approved at 1990/91 additional estimates for DAMASK and $46.1m for Cambodia.[29]

5.37 The cost of Cambodia in 1991-92 was $12.5 million. Cabinet has decided to supplement Defence with $49.1 million for two rotations to Cambodia over 18 months. Recovery from the UN is expected to be $21.9 million which will be absorbed by Defence when it is paid back. By September 1992 $0.311 million had been recovered.[30]

5.38 The $49.1 million does not reflect the true cost of Australia's involvement in the UN force in Cambodia. This calculation excludes costs such as salaries on the grounds that such costs would be incurred if personnel were engaged in their normal tasks in Australia.

5.39 Whether Defence seeks or receives Government supplementation for costs incurred in peacekeeping activities is assessed on a case-by-case basis, considering the cost and operational

[28] Defence, Submission, p.37.

[29] Defence, Submission, p.119.

[30] *Estimates Committee Hansard*, 8 September 1992, p.6.

on a case-by-case basis, considering the cost and operational implications of the commitment. Such costs are generally absorbed by Defence in the case of smaller commitments. For larger scale commitments which involve significant costs or which form part of a foreshadowed larger commitment, the recent practice (ie for the Gulf and Cambodia) has been for Defence to meet normal running costs but be supplemented by Government for verifiable net additional costs (eg transport, special allowances and special equipment) which are clearly related to the particular commitment. Reimbursements received from the UN are then returned to Consolidated Revenue as a partial offset to the cost of supplementation to Defence. Previously the practice (with Namibia) was for UN reimbursements to be returned to Defence, resulting in a delay of recoveries to the portfolio. In some cases, Government supplementation was sought in addition.

5.40 Four Navy deployments to the Gulf have been completed and a fifth (HMAS *Canberra*) was approved by the Minister in August 1992. No costs have been reimbursed by the United Nations nor are any expected. Supplementation received by Defence for the Gulf commitment is as follows:

	$m
Forces Executive	0.081
Navy	75.251
Army	7.523
Air Force	7.047
Strategy and Intelligence	0.101
Acquisition and Logistics	7.880
Supplementation Total	97.883

5.41 Those costs which have been identified and attributed to the Gulf commitment have been met through Government supplementation, with the exception of part of the Navy's costs. As of October 1992 the

with Government supplementation of $75.251 million. The Navy Program has additionally received $13.897 million supplementation from within Defence Portfolio. The remaining costs were offset from savings within the Navy Program, eg from exercises and deployments cancelled or deferred as a result of the Gulf operations.

5.42 The February 1989 cost estimate for Namibia was $28.1 million. Available records do not permit the precise identification of actual Namibia related expenditure from more general expenditure. UN reimbursements for the Namibia commitment are being returned to the Army Program. No Government supplementation is involved. The UN reimbursements include preparation costs, movement of personnel and equipment, depreciation of equipment, all material consumed, and standard troop reimbursement for use of personnel, personal equipment and weapons. Salaries are not reimbursed. So far $5.157 million has been reimbursed by the UN, with payment also expected for an outstanding claim of $1.446 million. A final claim for about $0.7 million is currently being prepared by Army.[31]

Comment

5.43 UN operations did not impose unachievable demands on ADF forces because they were not engaged in hostilities. Had the situation been different, the ADF would have been seriously embarrassed and unable to meet any significant additional task. The UN commitment was undertaken having in mind what the ADF could comfortably provide and by the desire to make a contribution.

5.44 The Defence response claims that the impact of UN commitments on ADF stockholdings was minimal. The Committee does not accept this.

5.45 Relatively small UN commitments posed problems for Navy and Army. In significant areas ADF stockholdings proved inadequate. Had the commitments been more demanding and prolonged ADF logistics support required, or had alternative demands been placed on the ADF, or had another threat developed, the problems would have been untenable.

5.46 The Defence response implies a requirement for the communications equipment needs in the peacekeeping areas to be refined.[32] Although this situation suggests planning deficiencies, it is recognised that the UN commitments are *ad hoc* and that the decisions on the ADF role are taken by Cabinet. Under such circumstances, and unless ADF stockholdings cater for a wide range of UN commitments, the need to reallocate equipment and equip the UN contingents at the expense of other force elements will be an ongoing logistics support problem.

5.47 Some concern is warranted when relatively small UN commitments result in priority procurement action, reallocation and redirection of stocks and equipment shortages for other force elements. As the UN commitments continue and requests for ADF assistance prove to be a frequent strain on ADF stockholdings, the strategic guidance and resource allocations should make provision for a variety of likely UN (permanent and temporary) support roles.

31 Figures and explanation provided by Department of Defence, 3 November 1992.

32 Defence, Submission, p.37.

CHAPTER SIX

CONCLUSIONS

Stockholding Policies and Logistics Effectiveness

6.1 There is no ADF stockholding policy. The Committee had access to an abundance of evidence to show that, over a 30 year period, Defence had been unable to develop a stockholding policy which adequately addressed Defence capabilities, activity levels, usage rates and sustainability. The ADF has relied on the use of non-endorsed single-Service stockholding policies, practices and usage calculations.

6.2 It was not until 1988 that the premise was accepted that stockholding policy is but one element of ADF preparedness. However, the need for judgements to be applied in military planning,[1] including assessments for preparedness and resource requirements, has led to differing opinions[2] and delays within the Department. The Committee believes that resource constraints have also occurred because the lack of agreed activity levels and usage rates has prevented justification of resource bids.

6.3 Since 1988 Defence studies have pursued preparedness policies which are intended to incorporate readiness, sustainability and stockholdings.

6.4 The approach initiated by CDF and the Secretary of Defence,[3] in requiring Baker and Heggen to produce a policy that would assist judgements on priorities for levels of investment in particular areas, is endorsed. The development of preparedness objectives and related policies does provide the base and guidance for resource allocation decisions. However, that criteria will be relevant only to the highest level of threat considered.

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1 Defence, Evidence, pp.4,6,25.

2 Evidence, pp.244,303,309,314-6.

3 Baker-Heggen (1988), Annex B.

6.5 In 1988 the CDF expressed his concern 'about the capacity of our logistic system to support the operational elements which are required at the higher states of readiness.'[4] The emergence of a higher level threat than that planned for would find the ADF without the necessary capabilities or state of preparedness. If ADF forces are to be increasingly involved in UN commitments, planning based on the lower levels of credible threat - and resource constraints - will create a national security risk factor which is not acceptable. The Committee endorses the concerns expressed by the CDF.

6.6 The Committee considers that the present Defence approach to the development of ADF preparedness and stockholding policies is appropriate for low level contingencies but notes that there is disagreement within Defence on what low level contingencies need to be prepared for. In a situation where specific threats are not evident and resources are heavily committed to capital equipment programs, it is believed that Defence planning is related to the lowest level of credible threat. The problems encountered in outfitting small forces for UN commitments raises doubts on the adequacy of existing ADF capabilities. The Committee believes that ADF preparedness, including capability criteria, must provide for the equipment and reserve stocks needed to meet the highest level of credible threat. Ultimately, the difference between the higher and lower preparedness state units should only be in the levels of training and the categories of reserve stock allocated. (See Chapter 1, page 19)

Recommendation 1

The Committee recommends that Defence take immediate action to procure the reserve stock and unit equipment components necessary to meet capability criteria.

6.7 The present lack of accurate activity level and usage rates for broadly defined contingencies[5] should not prevent judgements being applied to the sustainability and stockholding policies. It is essential that the policies be put in place without further delay. The data can be refined and the policies amended when more accurate information

[4] Refer to page xi.

[5] Defence, Evidence, pp.7,10,25.

becomes available. The CDF, as the arbiter on judgements relating to military preparedness,[6] should resolve any disputes on stockholding policy issues. (See Chapter 1, page 19)

Recommendation 2

The Committee recommends that judgements be applied in determining activity levels and usage rates appropriate to the highest level of credible threat, and that the policies be developed without further delay.

6.8 The Committee holds the view that the relatively small and short term UN commitments in recent years have impacted adversely on ADF preparedness. Priority procurement action, reallocation and redirection of stocks[7] and equipment shortages in other force elements have resulted from the support of those commitments. An increase in the extent and level of UN commitments will be detrimental to ADF preparedness. The Committee believes that separate provision within capability planning is required for UN commitments. (See Chapter 1, page 20)

Recommendation 3

The Committee recommends that separate provision be made for a range of United Nations commitments which would be acceptable to and agreed by the Government and that funding be provided as an extension to the Defence budget.

Strategic Guidance

6.9 Defence planning and activity is concentrated on preparing to meet the range of undefined low level threat capabilities that could be realistically projected against Australia.[8] The Defence emphasis on preparations relating only to the low level threat base causes deferment

[6] *Defence Report* 1991, p.2.

[7] Defence, Submission, pp.36,37.

[8] Defence, Submission, p.7.

of additional effort which would also provide for higher levels of threat.[9] The Committee notes that DOA87 also records:

- defence planning and preparations should be responsive to any changes or uncertainties in logistics support arrangements which impact on sustainability or the expansion base;[10]

- the concept of warning does not imply a defence force that is static until a threat has materialised;[11] and

- defence needs for civil infrastructure support involve complex legislative, administrative and operational aspects.[12]

The Committee considers that advantage should be taken of the present low level threat situation in order to make preparations to meet higher levels of threat.

Sustainability

6.10 Judgements on force structure and preparedness relate to the best affordable mix to generate desired military capabilities.[13] The ADF possesses an inventory of modern and effective weapon systems with further investment planned over the next decade. The investment level to provide the preparedness part of the mix is related to the sustainability and stockholding issues which have yet to be resolved.[14] The Committee is concerned that the 'best affordable mix' has not been provided for the sustainability factor in preparedness. The need to reallocate assets to higher preparedness state units and for UN commitments is a strong indication that it has not.

9 Defence, Submission, pp.63,65,67-8,69,73,74,76,81.

10 DOA87, p.29.

11 DOA87, p.29.

12 DOA87, p.68.

13 Defence, Submission, p 7.

14 Defence, Evidence, pp.7,10,25.

Australian Defence Force Procurement

6.11 The nature of spares support decisions during capital project acquisition results in both deficiencies and surpluses in the level of support provided. The deficiencies are identified and corrected during in-service operation of the new weapon systems. FMS-sourced surpluses can be adjusted by arrangement with the US Services but most surpluses are disposed of through inventory reduction programs and major equipment disposal action. A surplus asset adjustment process is required for items procured through commercially-sourced capital project activity. (See Chapter 2, page 25)

Recommendation 4

The Committee recommends that commercial and Foreign Military Sales contracts within capital equipment projects include specific clauses which permit the return for credit of support spares identified as surplus to requirements within five years of delivery into service of the new capital equipment.

6.12 The Services supply systems do not react automatically to significant changes in supply leadtimes or provide notification to logistics management staff that leadtime data requires adjustment. Logistics managers do not have systems to support the routine monitoring of production schedules for items of a strategic nature. (See Chapter 2, page 27)

Recommendation 5

The Committee recommends that Defence arrange for the development within supply systems redevelopment projects of a system to actively monitor production and supply leadtimes for combat oriented and other important stock items.

6.13 The government to government agreements and equipment support arrangements negotiated within Defence do not provide for guaranteed support during higher levels of conflict or in situations which may not have the political support of the supplier nation. Nor do the agreements provide for access to the supplier nation reserve stock

levels. All supplies under such agreements and particularly significant items such as missiles are ultimately subject to supplier nation consideration of political and other issues. The cancellation of export licences or other administrative actions could nullify the force of government to government and other logistics support arrangements. (See Chapter 2, page 28)

Recommendation 6

The Committee recommends that Defence examine objectively alternative logistics support arrangements including new supply sources, indigenous production and the maintenance of strategic reserves in order to reduce the level of dependence on government to government agreements as a single supply source.

6.14 The Committee believes that the ADF cannot rely upon the ready availability of significant items such as missiles, either at short notice or even within a warning time, for higher level threat. The supply leadtimes are from two to four years. ADF requirements and priorities would be in competition with those of other users and, in a worst case, may not be agreed by the supplier nation. (See Chapter 2, page 30)

Recommendation 7

The Committee recommends that in regard to long lead items, Defence examine alternative supply arrangements, including new sources of supply, indigenous production and the maintenance of strategic reserves.

Transportation

6.15 The Committee believes that civil transportation infrastructure capabilities - in terms of capability to quickly move large amounts of equipment - are not given sufficient emphasis in determining stockholding policies. Storage locations, likely destinations and civil transportation capacity to respond to movement priorities are

considered to be the issues.[15]

6.16 The existing single-Service stockholding practices do not address the mix of resources, the strategic location of stocks or the distribution needs of the ADF. Similarly, they do not recognise the likely effects of threat levels on the continued responsiveness of supply sources and civil infrastructure arrangements. (See Chapter 3, page 34)

Recommendation 8

The Committee recommends that within the development of Australian Defence Force preparedness and stockholding policies, Defence address the mix of resources, the strategic location of stocks, the distribution needs of the Australian Defence Force and the likely effects of threat levels on the continued responsiveness of supply sources and civil infrastructure arrangements.

6.17 DOA87 gives recognition to the need for comprehensive arrangements and legislation to ensure adequate support from the civil infrastructure. These requirements are valid in terms of force expansion and warrant action within existing strategic guidance. The content of paragraph 6.9 is relevant to transportation arrangements.

6.18 In the context of support for low level threats, Defence has negotiated a number of arrangements with civil transportation authorities. Defence advised that the need for Defence Power legislation and more extensive and binding civil infrastructure and industry support arrangements for times of higher level threat is not a priority.[16]

6.19 The Committee does not agree with the Defence position. A period of low threat is the right time to undertake administrative and support arrangements for possible high threat situations. These tasks should not be avoided until warning time. (See Chapter 3, page 39)

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15 Brigadier Christopherson, Evidence, pp.82-5.

16 Defence, Submission, p.66-71.

Recommendation 9

The Committee recommends that Defence take immediate action to initiate Defence Power legislation and to develop civil transport infrastructure and industry support arrangements which are responsive to all levels of national emergency.

Management Systems

6.20 The information available on supply systems redevelopment implies resource savings as a primary motive. These systems - which have been under development for many years - are to address the management issues with less apparent emphasis on the importance of rapid response to customer needs at bases.[17]

6.21 The Committee does not agree with the concept of the planned Defence National Storage and Distribution Centre. The facility will be too large to enable basic receipt, stock location and dispatch functions to be carried out effectively and efficiently. The concept is contrary to commercial practice and there is no identified fall back position which will permit more responsive facilities to be developed. There is also concern about the possible extent of loss or damage through fire or other causes. The plan based on wholesale warehouse space rationalisation, rather than the needs of the ADF, is unacceptable. (See Chapter 4, page 48)

Recommendation 10

The Committee recommends that the Defence National Storage and Distribution Centre proposal be cancelled.

Recommendation 11

The Committee recommends that the existing smaller and more reactive wholesale warehouse facilities be retained.

6.22 The opportunity to provide within the Defence Logistics

[17] Defence, Evidence, p.135.

Redevelopment and Supply Systems Redevelopment Projects, the latest automated technology for base and regional warehouse facilities is not being realised. The Committee believes that consideration of such an investment in facilities and improved support for operational and maintenance support is justified. The automated receipt, storage, retrieval and dispatch systems already installed and proved in military and commercial warehouses should be investigated for application to spare parts and small item storage. (See Chapter 4, page 48)

Recommendation 12

The Committee recommends that Supply Systems Redevelopment Project and Defence Logistics Redevelopment Project staff jointly investigate and report on the cost effectiveness of installing proved automated warehouse systems and equipment within base and regional warehouses. The potential to achieve improved responsiveness and manpower savings in warehouse operations should be given equal emphasis.

United Nations Commitments

6.23 The Committee strongly believes that no unit of the Australian Defence Force should be committed to a UN operation without firm guarantees that equipment will remain with the unit. In the event of a situation such as that in Morocco occurring, the Australian contingent should be withdrawn.

6.24 The Committee is extremely concerned that impounding the communications equipment has given a foreign power access to code books, procedure manuals and other high security items of the Australian Defence Force. (See Chapter 5, page 55)

Recommendation 13

The Committee recommends that no Australian Government should agree to the Australian Defence Force participating in United Nations operations without uninhibited access to agreed Australian Defence Force weapons and equipment.

Recommendation 14

The Committee recommends that, in the event of weapons and equipment being withheld from Australian Defence Force personnel participating in United Nations commitments, without agreement, the units should be withdrawn.

Training

6.25 While the issue of stockholdings for training does not bear a direct relationship to this inquiry and has not been specifically discussed in this report, the Committee does believe that the matter warrants attention. The Committee was unable to ascertain from the inquiry what the usage rate and requirement was to maintain an adequate level of competence.[18] The Committee has been concerned for some time that insufficient stock, particularly ammunition, is made available for training purposes.[19]

6.26 There is little justification in equipping the ADF with expensive and sophisticated equipment if, through lack of training, the equipment cannot be used to the highest degree of effectiveness and the ADF cannot maintain adequate levels of competence.

Recommendation 15

The Committee recommends that Defence take immediate action to increase training stocks, without waiting to complete the preparedness and stockholding policies.

[18] Defence, Submission pp.122,141-2.

[19] In July 1991 the Defence Sub-Committee learned during an inspection of 16th Air Defence Regiment that only six RBS-70 missiles are allocated to 111 Air Defence Battery (Light) per year. This was considered insufficient for proving the equipment, let alone for training purposes. (Report on the Visit of the Defence Sub-Committee of the Joint Committee on Foreign Affairs, Defence and Trade to Adelaide, July 1991, p.17.)

Career Opportunities

6.27 The Committee believes that the issue of career opportunities in the logistics area also warrants comment. Career opportunities do not exist for specialists in logistics to achieve promotion to the highest ranks of the ADF. Advancement and general service experience is based on rotation through a range of postings. Higher positions are normally available only to those who are command oriented.[20] The limited promotion opportunities at senior rank level act as a disincentive to specialisation within a long term Service commitment.

6.28 The constraints on specialist officers being promoted and appointed to non-command and specialist Division head positions within Defence can impact on the level of quality of the advice available to the highest Defence appointments. The capital projects, logistics and computing fields are areas of particular significance.

Recommendation 16

The Committee recommends that the career structure for specialist officers include appointment to the specialist military Command and division head positions.

Chris Schacht
Senator
Chairman

December 1992

[20] Defence, Evidence, p.218-9.

The Committee is referring to 2-star appointments and above.

APPENDIX 1

LIST OF PUBLIC HEARINGS AND WITNESSES

25 May 1992 (Canberra)

Rear Admiral Kenneth Allan Doolan, AO, RAN
Assistant Chief of the Defence Force - Development

Major General Stephen Newman Gower, AM
Assistant Chief of the Defence Force - Logistics

Commodore Mervyn John Youl, AM
Chief of Logistics
Naval Support Command

26 June 1992 (Canberra)

Brigadier Robert James Carson
Director General, Materiel Management

Brigadier Geoffrey John Christopherson, AM (Retired)
Private citizen

Rear Admiral Kenneth Allan Doolan, AO, RAN
Assistant Chief of the Defence Force - Development

Mr Anthony Thomas Hugh Every-Miller
Quality Manager
AWA Ltd

Major General Stephen Newman Gower, AM
Assistant Chief of the Defence Force - Logistics

Mr Michael James O'Connor
Executive Director
Australia Defence Association

Air Commodore Ian William Scotland
Director General
Joint Movements and Transportation

Mr Terence Charles Dominic Smith
General Manager
Supply Systems Redevelopment Project

6 July 1992

Brigadier Robert James Carson
Director General
Materiel Management

Commodore Adrian Ronald Cummins (Retired)
Returned and Services League
National Defence Committee

Rear Admiral Kenneth Allan Doolan, AO, RAN
Assistant Chief of the Defence Force - Development

Major General Stephen Newman Gower, AM
Assistant Chief of the Defence Force - Logistics

7 July 1992

Rear Admiral Kenneth Allan Doolan, AO, RAN
Assistant Chief of the Defence Force - Development

Major General Stephen Newman Gower, AM
Assistant Chief of the Defence Force - Logistics

Air Commodore Donald Arthur Ernest Tidd
Director General Logistics - Air Force

Dr Donald Gatherer Williams
Managing Director
Australian Submarine Corporation

Commodore Mervyn John Youl, AM
Chief of Logistics
Naval Support Command

APPENDIX 2

LIST OF SUBMISSIONS TO INQUIRY

No.	From
1.	Department of Defence
	Supplementary Submissions Nos. 1-10
2.	Department of Administrative Services
3.	Australia Defence Association
4.	Australian National Audit Office
5.	Brigadier G J Christopherson, AM (Retired)
6.	AWA Limited
7.	KPMG Peat Marwick Management Consultants
8.	Ryland & Sons Pty Ltd
9.	Benches and Cabinets Queensland
10.	Mr J Boughen
11.	The Returned & Services League of Australia Ltd
	Supplementary Submission No.1
12.	The Honourable J C Bannon, Premier of South Australia
13.	Australian Submarine Corporation Pty Limited

APPENDIX 3

LIST OF EXHIBITS

1. *ADF Stockholding Doctrine & Policy* (December 1990), Report for VCDF and DEPSEC A&L, Logistics and Strategic Planning Section, Defence Logistics Division.

2. Christopherson, G J (November 1991) *A Difficult Relationship: Defence and Civilian Transport Industry Relations since 1945*, Defence Fellowship Paper, Melbourne.

3. Annexures to Submission No.9 (Benches and Cabinets Queensland):

   - Colour Photographs - enlarged
   - Australian Design Council Criteria
   - BAC Catalogue
   - Reprint of Article from BHP Review
   - Reprint of Article from Mt Newman Chronicle
   - Extracts from Budget Papers 1987-88, 1989-90

4. Copy of report forwarded by J Boughen to Minister for Defence on 11 October 1985.

5. *Defence Logistics Strategic Planning Guide 1991* provided by Department of Defence.

6. Defence Logistics Redevelopment Project *Information Circular* provided by Department of Defence.

7. *ADF Stockholding Principles and Practice* provided by Department of Defence.

8. Viewgraphs on Supply Systems Redevelopment Project (SSRP), Presentation 26 June 1992.

9. Viewgraphs on Defence Logistics Redevelopment Project (DLRP), Presentation 26 June 1992.

10. Paper prepared by Peter A Smith for the Defence Procurement '92 Conference entitled *Maintaining an Ongoing Relationship with the Department of Defence.*

11. Promotional literature provided by Dr D G Williams, Managing Director, Australian Submarine Corporation Pty Ltd as follows:

- Pocket Guide to Cost/Schedule Control System
- *Sub Edit*, Staff Newspaper, Volume 3 Number 2 June/July 1990
- Australian Submarine Corporation Integrated Logistics Support
- Project Performance Measurement Systems
- Advanced Management Methods: The Future - Integrated Management Technology
- Australian Submarine Corporation

12. *Report of Review of Stockholding Policy for the ADF* (July 1988), Air Vice Marshal A E Heggen and Major General J S Baker. (Baker-Heggen Report)

13. Arthur Young, *Defence Supply Services Report*, 26 July 1989, including:

- Executive Summary and Strategic Implementation Plan, Defence Supply Services Review;
- Volume II Defence Supply Services, Appendices - Part 1;
- Volume II Defence Supply Services, Appendices - Part 2;
- Volume III Defence Supply Services, Special Reports.

14. Task Force Report, Defence Logistics Redevelopment, Defence Logistics Division, 23 May 1990.

AUTOMATED STORAGE AND RETRIEVAL SYSTEMS IN THE ISRAELI AIR FORCE

Israeli Air Force Warehousing Concepts and Policies

1. The Israeli Air Force (IAF) operates a centralised logistics EDP system which directs issues from wholesale warehouses to Air Base stores. The Air Base facilities report issues and receipts to the central system but, otherwise, operate independently under their automated storage and retrieval systems. The IAF is adamant in its belief that wholesale and retail levels of warehousing are necessary to sustain operational support and that support for air combat operations must remain with dedicated IAF personnel.

2. Within its long term planning to integrate all elements of its EDP logistics system, the IAF has adopted the policy of maximising the automation of spare parts warehouse operations, including the computerisation of the storage, retrieval and dispatch processes and the standardisation of the automated facilities and systems. Initially, the prime reasons for the policy were stated to be the need to minimise manpower and reduce storage area. However, the need to preserve a combat advantage and to support the operational needs of the combat units was identified as the core of all logistics system planning. In respect to spare parts and repairable items, the IAF investment in optimum solutions has led to faster response times, reductions in supply documentation, elimination of wasted effort and vastly improved control over the storage and distribution processes. The large bulk storage items, including tools, have been excluded from the automated warehousing system. The IAF sees no benefit in automating storage facilities for items which are slow moving or require special management and handling.

Manpower Savings

3. After providing for equipment and systems maintenance staff, manpower savings in warehousing staff employed on storage and retrieval (item selection) tasks were identified as:

a.	Central (Wholesale Storage) Warehouses	60% - 65%
b.	Air Base Warehouses	30% - 40%

The average time taken to select an item from storage has been reduced by four minutes. In an automated warehouse handling 1,500 issues daily, the faster selection permits savings of up to 100 manhours daily. The central EDP system which manages receipt, issues and redistribution, and the Ministry Of Defence responsibility for all procurement activity, removes the need for stock control staff.

Improved Receipt and Distribution Capability

4. The IAF claims that because of on-line access to procurement and dues-in data, the time taken to receive, process, report receipt of and store equipment has been reduced from up to 3 months (for large or problem items) to a maximum of 36 hours. Items specifically ordered for units can be directed to the packaging and dispatch area - the system provides the issue instruction immediately. The previous selection, issue and delivery timeframe of 2 to 4 weeks for spares (and bulk items) required at Air Bases has been reduced to a maximum of three days.

Warehouse Equipment Characteristics

5. The automated (storage aisle) cranes have been designed so that they can operate from the front or rear of the store. This feature has been incorporated in the event that the warehouse is damaged but 'hardening' of the warehouse sites was considered to be too costly. The design reliability of 95 per cent up-time is easily maintained. Equipment life is planned for 12 years but indications are that a dependable operating life of more than 20 years can be expected. While 2 to 4 technicians are employed to maintain the central (stores depot) warehouse equipment, the Air Base equipment and systems have not required full-time technical support - the operators handle the minor problems experienced.

Automation System Characteristics

6. The storage and selection algorithm has been developed to ensure a balance of work between the cranes and the storage aisles. Multiple stock locations are used for other than shelf-life items and the algorithm which directs stock location considers the frequency of item movement. High turnover items are located in the front storage racks, medium turnover items are located as far forward as practicable, and the slower moving items are stored towards the rear. The system will arrange for the relocation of items if the usage pattern changes.

Description of the Automated Central (Wholesale) Warehouse Systems

7. Fully operational since March 1979, the central automated warehouse system was installed to serve as an operational buffer for the storage and spare parts, assemblies and consumables. As such, the system required large and efficient storage capacity as well as a very extensive throughput capacity. The system has been integrated with the materials distribution (receipts and dispatch) centre and incorporates a full range operation of data processing to control, on a real time basis, the spectrum of warehousing and warehouse management activities. Installed at an approximate cost of US$5 million, details of the facility are:

a. System Capacity:

(1) 300,000 line items,

(2) 500,000 storage compartments,

(3) 3,500 inventory transactions per 8 hour shift,

(4) building dimensions (approx) 105m long, 40m wide, 10m high,

(5) single storage compartment size range:

6" x 8" x 6" to 2' x 4' x 12";

b. Type of Equipment:

(1) Automated Storage and Retrieval System (UHSI - USA)

- fully computerised, (9) dedicated stacker cranes installed in (9) storage aisles,
- storage in draw formed metal bins (70,000) approximately 2' x 4' in size, loaded on high rise storage racks - 10m high/300# load capacity per plan.

(2) Routing Systems:

Belt and roller type conveyors, transfer and pneumatic pushers - all locally controlled by PLC (Allen-Bradely -USA) micro-processes which are managed by the local micro-computer on a real time basis.

(3) System Control:

Mimic panel for the routing system, and crane interfaces for the storage system, enable direct control and full diagnostics capabilities on system components.

(4) Local Minicomputer System (based on 2 DIGITAL computers) supports:

- inventory control,
- crane control,
- routing system control,
- work plan,
- storage algorithm,

- managerial tools.

(5) Work Stations (8):

Each equipped with CRT (DIGITAL - USA), voucher printers (Diablo - USA), weight counting scales (Electroscale - USA) and proper work space with packaging aids.

Operation of Automated Central Warehouse

8. On receipt of an issue instruction from the centralised logistics EDP system (HQIAF/MAPA), the minicomputer system directs the selection and retrieval of the storage bin and its movement to a work station for issue operator action. At the workstation, the CRT unit displays the issue transaction and identifies the storage bin compartment containing the item. The operator selects the quantity required, places the issue quantity in a plastic bag and returns the balance of the items to the storage bin compartment. The issue quantity is key punched and:

a. the storage bin is automatically released from the work station and returned, along the conveyor system, for relocation in the storage aisle;

b. the issue voucher is printed and placed by the operator in the plastic bag with the issue quantity: a bar code label is also printed and affixed to the issue to aid onforwarding/dispatch;

c. the issue is sent down an angled shute and forwarded by conveyor system to the Materials Distribution Centre (MDC) for consolidation with other items for delivery to the nominated unit.

Description of the Materials Distribution Centre

9. Installed and integrated with the automated central warehouse system in April 1980, the Materials Distribution Centre is a two level building 100m long, 40m wide and 7m high and incorporates two major functions:

a. Receiving of incoming purchased items through:

(1) unloading of sea containers, air pallets, trucks,

(2) identification and inventory file update - involves extensive use of the teleprocessing network to communicate with the purchase order and item data master files (centralised EDP system),

(3) automated sorting of items according to desired storage destination (computer controlled),

(4) intermediate storage - on accumulative conveyors,

(5) distribution of items to designated storage facilities; and

b. Shipping of spare parts, assemblies and consumables to Service locations (within Israel) including:

(1) sorting items according to specified destination,

(2) staging - accumulating packages in modular containers, according to transportation routes, and consolidated packing lists are initiated via computer terminal, and

(3) loading - packages and containers are loaded on trucks, according to predetermined routes.

The MDC can receive and action 8 sea containers, 12 air pallets and 25 trucks daily. The receipt sorting and accumulation (conveyor) system can cope with 1,500 packages (of dimensions no bigger than 26 inches cubed), 200 pallets and has 10,000 sq ft of floor space for non-conveyable items. The shipping system can load 72 trucks daily and cope with 3,000 small parts issues (maximum package size 8" cubed), 12 regular packages (in the 8" cubed to 26" cubed range), 300 standard pallets, and up to 10,000 sq ft of non-conveyable items.

Equipment Installed in the Material Distribution Centre

10. The comprehensive range of equipment utilised within the MDC includes:

a. conveyors (UHSI - USA) - powered line roller, belts, gravity;

b. pneumatic pusher sortation systems comprising 20 lanes for receiving and 40 lanes for shipping;

c. small parts circular sorter (Logan - USA) based on 80 trays which are mounted on a circular rotating rail and which accomplish the sort by activating the tray tilt (in/out) to one of 128 destinations. An extendible telescopic belt conveyor increases the sort capability;

d. portable work stations (16), each equipped with a CRT (Elbit - Israel) and voucher/tag printer (Diablo - USA);

e. local minicomputer systems (DIGITAL) to support:

(1) status files for in-process items,

(2) distribution plan (receiving and shipping),

(3) sort control (real time),

(4) inquiries and updates of master files,

(5) build-up and tracking of shipping lists,

(6) management tools, and

(7) teleprocessing monitoring;

f. conveyors/sorters local control (PLC-Allen Bradely - USA) which enables direct manual entry via key pads, as well as remote computer control;

g. teleprocessing network (Codex - USA) which enables full switch between the minicomputers for back-up and monitoring of:

(1) 33 communication lines for local terminals,

(2) two communication lines for teleprocessing (to the centralised system master data files).

The system is also equipped with full patching and diagnostic capabilities.

Description of Fully Automated Service Warehouse at Air Bases

11. The IAF is installing automated warehouse at Air Bases for the storage of spare parts, assemblies and consumables to support maintenance organisations. The systems cost approximately US$2 mn, allow full manual back-up and provide for:

a. System Capacity (per warehouse):

(1) 100,000 line items,

(2) 140,000 storage compartments,

(3) 1,000 inventory transactions daily,

(4) building dimensions (approx) 115m long, 15m wide, 7m high,

(5) single storage compartment size range:

6" x 4" x 3" to 2' x 4' x 22";

b. Type of Equipment:

(1) Automated Storage and Retrieval System (UHSI - USA)

- fully computerised, (2) dedicated stacker cranes installed

in 2 storage aisles,

- storage in draw formed metal bins (13,000) approximately 2' x 4' in size, loaded on storage racks - 7m high/300# load capacity per pan.

(2) System Control:

Aisle' controller unit, which includes direct control and diagnostic functions for the stacker crane, communicates with the local minicomputer on a real time basis. The unit is programmable.

(3) The Local Minicomputer System (DIGITAL) is capable of monitoring two warehouses and supports:

- inventory control,

- crane control - via the aisle controller unit,

- work plan,

- storage algorithm,

- managerial tools,

- teleprocessing monitoring (inquiries and updates).

(4) Teleprocessing Network (Gandalf - USA)

The network covers two warehouses, is equipped with full range patching and diagnostic capabilities and enables switching between two minicomputers for the back-up and monitoring of:

- 48 communication lines for local terminals,

- two communication lines for teleprocessing (centralised system - mainframe - master file update).

(5) Work Stations for:

- monitoring warehouse operations,

- customer use at maintenance facilities to allow ordering and inquiring capabilities.

Each work station communicates directly with the minicomputer and is equipped with a CRT (VT100) and a printer (TALLY).

(6) Pneumatic Spares Parts Launch which is a pneumatic tube delivery system between the warehouse issue point and customer sections. Relay points permit all customers on even large air bases to be served by the fast delivery system. Total response time (selection, issue and delivery) is normally less than five (5) minutes.

Automated Central Warehouse and Distribution Centre in Northern Israel

12. The IAF has, in the final stages of testing and acceptance, a central logistics depot system comprising an automated storage and retrieval system, a distribution centre and various warehouse all integrated via a local computer. The depot system is designed for 250,000 line items and 2,500 inventory transactions daily. The software system modules include sub-systems for inventory control, automated storage and retrieval management, manual warehouse management, on-line data exchange with the host computer, headquarters status reports and inquiries, and the identification of receipts.

IAF Management and Customer Attitude to Centralised Inventory Management and Automated Warehousing

13 Senior HQIAF logistics managers and commanders of large maintenance units expressed high levels of satisfaction with the emerging integrated logistics system network and the responsiveness of the network (and automated facilities) to customer needs Customer sections no longer need to maintain bench level holdings. IAF staff are convinced that the decision to concentrate on a network of automated logistics systems has aided system integration, has greatly improved system responsiveness, and still permits independent Air Base system operations if the network is broken. The additional benefits are substantial numbers of logistics manpower made available for combat related duty, reduction in warehouse space, and the virtual elimination of equipment loss and storage location errors.

APPENDIX 5

AUSTRALIAN DEFENCE FORCE PREPAREDNESS AND RELATED TERMINOLOGY

(Provided by Department of Defence[1])

Force Element. A force element is a unit or association of units having prime objectives and activities, eg Tactical Fighter Force operational squadrons.

Force Expansion. Force expansion is the process wherein the force in being is increased in size, capability or both, by the acquisition of additional trained personnel, equipment, facilities or other resources.

Force in Being. The force in being is the Defence Force as it exists at any given time including its state of preparedness.

Force Structure. Force structure refers to the size, organisation, and technical and operational characteristics of the force in being.

Military Capability. Military Capability is the combination of force structure and preparedness through which a nation exercises combat power.

Minimum Level of Capability. The Minimum Level of Capability is the minimum level from which element of the force in being can achieve their Operational Level of Capability within assigned readiness notice.

Minimum Resources. Minimum resources are those required to maintain within the force in being the Minimum Level of Capability.

Mobilisation. Mobilisation is:

a. the act of preparing for war or other emergencies through assembling and organising national resources;

b. the process by which the armed forces or part of them are brought to a state of readiness for war or other national emergency including assembling and organising personnel, supplies and materiel for active military service.

Mobilisation Planning. Mobilisation planning is a generic term encompassing the planning activities associated with readiness, sustainability, preparedness, mobilisation and force expansion.

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1 Defence, Submission, pp.23-4.

Operational Level of Capability. The Operational Level of Capability is that level of capability at which elements of the force in being have the necessary resources and are sufficiently trained to deploy and conduct specified operational roles and tasks.

Operational Viability Resources. Operational viability resources are those required to enable forces to conduct operations without external logistic support for a specified period.

Preparedness Preparedness denotes the ability of forces to undertake operations in a timely manner and sustain the activity involved in those operations. It is used to describe the combined outcome of readiness and sustainability activities.

Present Level of Capability. The Present Level of Capability is the level of capability of an element of the force in being at any given time.

Readiness. Readiness is the ability of designated forces to deploy to conduct specified operational roles and tasks within a nominated time at specific strengths and capabilities.

Readiness Leadtime. Readiness leadtime is the period of time required by a designated unit or force element to reach its Operational Level of Capability.

Readiness Notice. Readiness notice is the specified time in which a unit or force element must be capable of being made ready to conduct specified operational roles and tasks.

Surge. Surge is the process wherein military forces operate at higher than normal rates of effort for a limited and usually short period, in order to undertake operations or achieve specific objectives.

Sustainability. Sustainability is the ability to support forces on operations.

Sustainability Resources. Sustainability resources are those required to enable a deployed unit or force element to sustain operations for a specified period after depletion of operational viability resources.

Warning. Warning is an assessment of the time that would most likely be available before a potential enemy with hostile intent could practically undertake specified military action.

Work Up Resources. Work up resources are those required to raise, within readiness notice, the capabilities of the force in being to a level which would permit their deployment on operations.

APPENDIX 6

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