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Comparative Defence Planning.

Lessons for New Zealand.

A thesis presented in partial fulfilment of the requirements for the degree of Master of Arts (Defence and Strategic Studies) at Massey University, Palmerston North, New Zealand.

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2013

Abstract

The intent of this thesis is to identify ways in which defence planning can be improved in New Zealand. In order to do so, research examines practical examples of Capability Based Planning (CBP) amongst members of the Technical Co-operation Program (TTCP) - New Zealand, Australia, Canada, United Kingdom and United States. This approach has also been applied to defence planning processes in Singapore and Finland. As part of this, the TTCP's CBP model provides an essential comparative template and in doing so, the methodology employed is essentially that of a comparative case study.

This thesis has identified a number of positives and negatives amongst the research group. However, four particularly important findings have emerged. Firstly, New Zealand must find ways to better integrate technological change into capability decision making processes and across the capability life cycle. Secondly, external expertise is now widely employed by defence policy makers and this should be integrated into defence planning structures in this country. Thirdly, quantitative approaches to defence capability development offer significant potential and are well developed in partner states. This may provide a means by which to extend New Zealand's own capabilities in this regard. Lastly, examples of defence planning in Singapore and Finland suggest that a hybrid model based on CBP but adapted to the realities of a state's unique strategic culture, can work in a practical context. This flexibility of use means CBP continues to offer significant utility to defence planners in New Zealand as well as an evolutionary foundation upon which to base future defence capability development.

Acknowledgements

This thesis would not have been possible without the assistance and patience of my wife, Andrea, who endured hours of proof reading, not to mention the lengthy absences required of any part time study. The same thanks and love go to my dearest daughters – Olivia and Brigette. They may never read this thesis but if they do – please don't fall asleep.

Particular thanks are also due to Dr Peter Greener whose thoughts and contributions have been absolutely indispensable. Appreciation must also be extended to Anna Powles, John Tonkin-Covell and Lance Beath, all of whom provided significant assistance throughout my post graduate studies.

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Acronyms

ADF	Australian Defence Force
ANU	Australian National University
BLOC	Basic Level of Capability
CapDiM	Capability Discussion Matrix
CATCAM	Capability Assessment Methodology
CBP	Capability Based Planning
CDFAI	Canadian Defence and Foreign Affairs Institute
CDG	Capability Development Group
CDP	Capability Development Plan
CF	Canadian Forces
CFDS	Canada First Defence Strategy
CJTL	Canadian Joint Task List
CMB	Capability Management Board
CMF	Capability Management Framework
CRP	Corporate Risk Profile
CSIS	Centre for Strategic and International Studies
DAB	Defence Acquisition Board
DAB	Defence Advisory Board
DCARR	Defence Capability and Resourcing Review
DCG	Defence Capability Guide
DCP	Defence Capability Plan
DLOC	Directed Level of Capability
DLOD	Defence Lines of Development
DMO	Defence Materiel Organisation
DND	(Canadian) Department of National Defence
DOD	(United States) Department of Defense
DPA	Defence Planning Assumptions
DPG	Defence Planning Guidance
DRDC	(Canadian) Defence Research and Development Agency
DRMF	Defense Risk Management Framework
DSTA	(Singaporean) Defence, Science and Technology Agency
DSTL	(United Kingdom) Defence, Science and Technology Laboratory
DSTO	(Australian) Defence, Science and Technology Organisation
DTA	(New Zealand) Defence Technology Agency
EC	Employment Contexts
FDF	Finnish Defence Force
FIC	Fundamental Inputs to Capability
FJOC	Future Joint Operating Concepts
FPDA	Five Power Defence Arrangement
IRMF	Integrated Risk Management Framework
JCIDS	Joint Capabilities Integration and Development System

JCRB	Joint Capability Requirements Board
LMET	Joint Mission Essential Tasks
LMETL	Joint Mission Essential Task List
MAP	Ministerial Advisory Panel
MRO	Military Response Options
MTL	Military Tasks List
NATO	North Atlantic Treaty Organisation
NMS	National Military Strategy
NDS	National Defence Strategy
MoD	Ministry of Defence
NSC	National Security Council
NSRA	National Security Risk Assessment
NSS	National Security Strategy
NST	National Security Tasks
NZDF	New Zealand Defence Force
NZMOD	New Zealand Ministry of Defence
OAG	Office of the Auditor General
OLOC	Operational Level of Capability
OPRES	Operational Preparedness Reporting System
OSCE	Organisation for Security and Co-operation in Europe
PAA	Program Activity Architecture
PAP	People's Action Party
PMB	Program Management Board
PMF	Performance Management Framework
PRICIE	Personnel, Research, Infrastructure, Concept, Information and Equipment
QDR	Quadrennial Defense Review
RPP	Report on Plans and Priorities
SAF	Singapore Armed Forces
SDSR	Strategic Defence and Security Review
SLOC	Sea Lanes of Communication
SRB	Senior Review Board
TEPIDOIL	Training, Equipment, Personnel, Information, Concepts/doctrine, Organisation, Infrastructure, Logistics
TTCP	The Technical Co-operation Program
UMNO	Malay Nationalist Organisation
UKTI DSO	United Kingdom Trade and Investment Defence & Security Organisation

Chapter 1: Introduction

New Zealand is a founding member of The Technical Co-operation Program (TTCP).¹ Formed in 1957 as a way to facilitate the exchange of defence research and development information amongst five English speaking nations, New Zealand, Australia, Canada, United Kingdom and United States, the TTCP has a number of very practical foci.² One of the more important of these is carried out by the TTCP Joint Systems and Analysis Group or Panel Three, which provides a forum to facilitate the sharing of defence planning methodologies and related processes amongst member states.³ As a consequence, TTCP members now employ a common approach to defence planning known as Capability Based Planning (CBP).⁴

Whilst TTCP members seem likely to adhere to same basic CBP template, it is to be expected that slight variations in emphasis will exist between member states given differing bureaucratic and parliamentary systems. Identifying these variations may identify alternative approaches useful to defence planners in New Zealand. However, differences between TTCP members are also on a non institutional level. Clearly, TTCP member states are of sharply varying sizes. Despite this, Capability Based Planning was originally formulated in the United States with the needs of the United States military in mind.⁵ As a result, New Zealand, by far the smallest member of the TTCP, employs the same defence planning methodology as significantly larger states such as the United States and United Kingdom.⁶ Consequently, it could well be that the defence planning methodologies of other small states are better suited to New Zealand. Investigating this concept is also likely to be useful to defence planners in this country.

Another salient issue as far as New Zealand is concerned, is the way in which politics has played an extremely influential role in defence planning. Defence equipment acquisition requires the approval of the New Zealand cabinet⁷ and research by Peter Greener suggests that this has lead to numerous

¹ Newton, R., "The Technology Co-operation Program (TTCP) Maritime (MAR)", *The NPS Maritime Defense Research Program Newsletter*, 48 (July-August 2010): 1, accessed March 14th, 2013, <http://calhoun.nps.edu/public/bitstream/handle/10945/24549/%3Fview%26did%3D16287.pdf?sequence=1>

² *Ibid.*

³ "Guide to Capability Based Planning", TTCP Joint Systems and Analysis Group, Technical Panel, 3, accessed March 16th, 2013, http://www.acq.osd.mil/ttcp/reference/index.html#tech_docs

⁴ *Ibid.*

⁵ Davis, P.K., *Analytic Architecture for Capabilities Based Planning, Mission System Analysis and Transformation* (Santa Monica: Rand Corporation, 2002), 53.

⁶ "Guide to Capability Based Planning".

⁷ Greener, P. *Timing Is Everything - The Politics and Processes of New Zealand Defence Acquisition Decision Making* (Canberra: ANU, 2009), 151-157.

trade-off decisions, many of which do not align with policy recommendations.⁸ As Greener also suggests, this has resulted in a number of haphazard, un-coordinated planning outcomes albeit that a majority of these decisions reflect the over whelming influence of fiscal pressures.⁹ However, whilst budgetary constraints appear to be the dominant externality in New Zealand, this cannot be assumed to be the case elsewhere. Because of this, identifying the nature and extent of externalities in other states is also likely to be of interest to New Zealand defence planners.

Questions such as this are clearly focused on the process of defence planning. However, the intangible concept of strategic culture is also relevant. Specifically, it is very difficult to imagine the existence of any two states with an identical strategic outlook or environment. In short, no two states are ever likely to be exact replicas in this regard. As a result, the usefulness of a common defence planning template such as CBP seems questionable in any form given the massive variations in key strategic determinants such as geography, politics and extent of global interests. Despite this, the diverse TTCP membership continues to employ a shared defence planning template. In this respect, it is arguable whether member states, with the possible exception of Australia, have much in common at all with New Zealand's strategic orientation. As a consequence, investigating how smaller countries reconcile their unique strategic cultures with a ubiquitous defence planning template such as CBP, could also prove helpful to defence planners in New Zealand.

Despite issues such as these, CBP has become firmly embedded into New Zealand Ministry of Defence (NZMOD) and New Zealand Defence Force (NZDF) structures over the past decade or more. However, as these leading paragraphs suggest, a number of important questions remain outstanding. In an effort to answer these and identify ways to improve defence planning in New Zealand, this thesis will seek to answer three key questions:

1. To what extent are defence planning processes in the group of researched states, including New Zealand, aligned with the TTCP's generic model of defence planning?
2. To what extent are capability outcomes of TTCP states inconsistent with the capability based planning process and if so, are such distortions attributable to externalities?
3. Are alternative defence planning processes and approaches worthy of consideration, particularly those of the TTCP and smaller states?

In order to achieve these aims, the first priority of this thesis will be to outline and describe the TTCP's generic Capability Based Planning template (stages a.-j.). This will then be followed by a matching analysis focused on the practical application of CBP in the New Zealand context.

⁸ *Ibid.*

⁹ *Ibid.*

Subsequent chapters of this thesis will consider the capability optimisation frameworks employed by other TTCP members. Most importantly, this will examine the extent to which these states adhere to the generic CBP model advocated by Panel Three. To achieve this, practical examples of defence planning processes will be examined. These are outlined below:¹⁰

Australia: Defence White Paper 2009 & associated companion reviews;¹¹

Canada: Canada First Defence Strategy 2008;

United States: National Security Strategy 2010 & Quadrennial Defence Review 2010;

United Kingdom: National Security Strategy 2010 & Strategic Defence & Security Review 2010.

Compartmentalising each phase of the defence planning process within a common methodological format provides a tractable means by which to compare defence planning processes. From this it is hoped to identify the strengths and weaknesses of capability based defence planning in Australia, Canada, United States and United Kingdom as a way to improve defence planning processes in New Zealand.

Following this, research will then consider how two smaller states approach defence planning. It is intended that this process will also establish the extent to the TTCP's CBP model is followed. Focused on Singapore and Finland, research will also concentrate on practical examples of defence planning processes:

Singapore: 2004 Singapore's National Security Strategy - The Fight Against Terror;

Finland: 2009 Finnish Security and Defence Policy and 2010 Security in Society.

These two states were selected as case studies as they are democratic, have populations of a similar size to New Zealand, a three service military, are not part of a formal defence alliance with the United States and actively support United Nations missions. These are features shared with New Zealand. Small, fully neutral states such as Austria, Ireland and Switzerland were not considered.

Research concerning Singapore and Finland will also focus on the importance of strategic culture when determining capability priorities and defence investments. Most importantly, historical experiences are a highly influential feature of this relationship, a point stressed by scholar Alistair I Johnston, who describes strategic culture as a product of "historical choices ... and precedents" that

¹⁰ "Defence White Papers," Military Education Research Library Network, accessed 20th April, 2013, <http://www.merln.ndu.edu/whitepapers.html>

¹¹ It should be noted that the most recent Australian Defence White Paper, released in May 2013, has not been selected. This reflects the relative lack of academic and critical analysis at the time this thesis was completed.

“guide choice.”¹² The influence of history is also emphasised by Synder who defines strategic culture as “modes of thought and action, which derive from perception of the national historical experience.”¹³ With the concept of strategic culture in mind, research will seek to establish the extent to which final defence capability decisions differ to the priorities generated by objective analysis and processes and identify whether these distortions reflect the unique strategic circumstances of Singapore and Finland. As part of this, it is also hoped to ascertain if CBP is able to adapt and work within the bounds of a states unique strategic culture and whether a hybrid model of defence planning that incorporates CBP, is able to operate in states of a similar size to New Zealand.

Importantly this thesis will not consider the relationship between strategic culture and capability optimisation amongst TTCP members. This reflects a desire to conduct a comparative analysis between TTCP partners that is focused on the multifaceted practicalities of defence capability planning. To consider the strategic culture of TTCP members, including New Zealand, exposes this thesis to the risk of excessive complexity which may in turn endanger the quality of findings.

Finally, whilst this thesis involves an examination of the most recent practical examples of CBP in TTCP member states, this is not the main methodological focus. Rather the intent is to examine the efficacy and consistency of the processes embedded within defence planning institutions, government departments and the military. Although the majority of analysis concentrates on the most recent examples of defence planning, this is not always the case. The most notable exception in this respect is Australia where the 2009 Defence White Paper has been selected for analysis. The decision to do so partly reflects the timing of this thesis relative to the release of the 2013 White Paper. Not only is the availability of critical academic analysis relating to the 2009 Defence White Paper significantly greater, it also provides a highly visible illustration of the methodological interaction between high level strategic assessments and subsequent defence planning outcomes.

¹² Johnston, I. A., “Thinking About Strategic Culture,” *International Security* 19:4 (1995): 33-64.

¹³ Snyder, J in Longhurst, K. “*Strategic Culture: The Key to Understanding German Security Policy?*” (Phd diss., University of Birmingham, 2000): 302.

Chapter 2: Literature Review

Introduction

This literature review will be conducted in four phases. Firstly, an effort will be made to identify research dealing with the concept of Capability Based Planning. This will include important theorists on the subject as well as research papers on CBP submitted by military alliance groupings and academics. Secondly, a survey will be conducted of research dealing with the use of CBP in TTCP member states - New Zealand, Australia, Canada, The United States and The United Kingdom. This phase will be extended to include Singapore and Finland. As part of this, relevant government, academic, defence and military publications from all seven states will be identified. In addition, research relevant to the historical and cultural context in which defence planning is undertaken will also be recognised. A third phase will involve the identification of research that compares defence planning processes between these states and/or proposed improvements to the way in which CBP is applied. A final phase will seek to identify if research of this nature has been used to improve the manner in which defence planning is currently conducted in New Zealand. The primary focus of this literature review will be the past 10-12 years. However, where thought applicable, earlier research will also be considered.

Past and present literature on this topic

Rand Corporation researcher P.K Davis is perhaps the most widely referenced theoretical thinker on Capability Based Planning. Davis' most important contribution, *Analytic Architecture for Capabilities Based Planning, Mission System Analysis and Transformation* (Davis 2002,) is a pioneering piece of research in the field of capability based planning and outlines the sequential model that is now widely acknowledged by defence planners. This analysis was followed by another closely related research paper, *Uncertainty Sensitive Planning* (Davis 2003). Included as a chapter in *New Challenges, New Tools for Defense Decision Making* (Johnson 2003), this analysis seeks to further develop the concept of CBP in a practical setting. Although Davis is often regarded as the foremost pioneer of CBP, his work was preceded by *A Framework for Defense Planning* (Kent 1989). Kent's work is similar to that of Davis to the extent it also advocates the use of a defence planning model based on capability analysis. Nevertheless, although this research publication predates Davis by some years, Davis' work remains the dominant reference in defence planning documents produced by NATO and TTCP member states alike. This is apparent from the TTCP's own research on CBP published by the *Joint Systems and Analysis Group: Panel Three* (TTCP 2012). NATO has also submitted research on the

topic. The most notable in this regard, *The Handbook in Long Term Defence Planning* (NATO 2003), was published by NATO's Research and Technology Board. NATO's defence planning process and use of CBP was further developed in a 'NATO live' presentation (NATO 2010). Again, both documents acknowledge Davis' work extensively.

Davis' influence can also be seen in a presentation by the Hague Centre for Strategic Studies to the *NATO International Conference on Defense Capability Portfolio Analysis* (De Spiegeleire 2009). This research piece is important as it highlights the crucial link between national risk assessments and CBP and the need to establish improved links between strategic guidance and subsequent planning outcomes. Thomas Durrell-Young, a senior lecturer at the U.S Naval Postgraduate School in Monterey, has also published on the use of CBP by NATO member states. *Capabilities-Based Defense Planning: Techniques Applicable to NATO and Partnership for Peace Countries* (Durrell-Young, 2006) outlines a sequential CBP template that has strong commonality with both the TTCP and Davis. However, perhaps a more important feature of Durrell-Young's work is the reference to the "rather anaemic body of literature dealing with defense planning methodologies" (Durrell-Young 2006, 35). This is an observation with substantial implications for this literature review. Due to security concerns, most CBP related publications are sourced from within bureaucratic, governmental organisations. Because of this, Durrell-Young believes much of the available CBP research is "neither intellectually nor academically rigorous" (Durrell-Young 2006, 35). As a result, it seems appropriate to regard such documents with a degree of caution.

This issue has immediate resonance with regard to New Zealand where almost all relevant CBP material is presented as part of official government documents such as *Defence White Paper 2010* (New Zealand Ministry of Defence – NZMOD - 2010) and the subsequent *Defence Capability Plan 2011* (New Zealand Defence Force 2011). Similarly, the term - Capability Based Planning – is used extensively in New Zealand Defence Force (NZDF) documents such as *The Defence Capability Management Framework* (NZDF 2011) and New Zealand Ministry of Defence (NZMOD) papers prepared for the *Capability Management Board* (NZMOD 2012). New Zealand Ministry of Defence documents such as the *Defence Capability and Resourcing Review (DCARR)* are also important examples where government planning states an adherence to the principles of CBP. Furthermore, reports from the New Zealand Auditor General's Office (OAG) also provide an insight into the practical workings of CBP in New Zealand. The 2001 OAG investigation into the acquisition of Light Armoured Vehicles and Light Operational Vehicles for the New Zealand Army provides a particularly good example - *Report of the Controller and Auditor-General on Ministry of Defence: Acquisition of Light Armoured Vehicles and Light Operational Vehicles* (OAG August 2001).

In contrast, academic research regarding the practical use and application of CBP in New Zealand is almost totally absent. Academic studies appear less inclined to consider the credibility of the sequential process involved in defence planning and more focused towards assessing the efficacy of final policy outcomes. Nevertheless, given the sequential nature of CBP, it remains important to consider the later and important examples in this regard include *Fifty Years of Foreign Policy* (Trotter 1993) and *Capability Planning: Towards A Third Way* (Dickens 2001). Other relevant research includes, *New Zealand's Defence Posture: a new direction* (Luke 2009) and *Defence Policy in the Asian Century* (White 2009). Perhaps the most important exception to the general academic preference to examine outcomes, in a manner unrelated to the methodology of policy making, is the book *Timing is Everything* (Greener 2009). This important analysis examines a number of practical instances where policy recommendations generated through disciplined, methodical, capability based defence planning processes, have been distorted by political decision making and other externalities. This is an issue of great relevance to the examination of contemporary defence planning in New Zealand as it provides an insight into the capability based planning processes employed by the Ministry of Defence and NZDF.

It is also important to identify research suggesting how New Zealand could improve its current, capability based, approach to defence planning. Relevant research in this respect also includes analysis of a more generalised nature, including a critique of defence policy making in New Zealand as a whole, rather than that which is focused on CBP alone. Background and historical information regarding New Zealand defence policy is therefore applicable to this thesis. Without this, research cannot be fully cognizant of the context in which defence planning outcomes are reached. This includes recognising defence analyses from senior government officials and politicians. Important examples in this respect include, *The Relationship Between Defence and Foreign Policy* (Hensley 1993) and *The Evolution of NZ Defence Policy* (Quigley 2006). Academics have also published a large number of articles of relevance to the context in which New Zealand defence policy is, and has been, made. Useful research in this regard includes *The Defence Debate in Australia and New Zealand* (McGraw 2007), *From Defence to Security: NZ's hard power, soft power and smart power* (Hoadley 2007) and *The Transformation of New Zealand Foreign Policy* (Patman 2005).

As is the case in New Zealand, materials regarding the use and application of CBP in Australia are also dominated by official documents from the Department of Defense and other official bodies. This includes *Defence White Papers* and companion documents such as the *Defence Capability Plan*, *Defence Capability Guide* and the *Defence Capability Development Handbook* along with public discussion papers such as *Key Questions for Defence in the 21st Century* (Australian Department of Defence 2009). Other notable government papers include the *Kinnaird Report* (Australian

Government 2003) and the *Mortimer Review* (Australian Government 2008). Both reports suggest ways to improve defence procurement, a vital element of defence capability planning, with a particular focus on increased transparency and accountability alongside stronger internal systems. Australian Defence, Science and Technology Organisation (DSTO) researchers have also published a number of papers proposing computational methods to improve the use of CBP in Australia. Important examples in this respect include *Computational Scenario-based Capability Planning* (Abbass et al. 2009) and *Model Based Military Scenario Management for Defence Capability* (Gori et al. 2006). Former senior politicians, such as one time Defence Minister Kim Beazley, have also made contributions to consider. *White Paper Then and Now: Returning to Self Reliance as a Labor Leit-Motif* (Beazley 2009) is a good example in this regard.

Nevertheless, no government agency or contemporary politician appears to have made a critical assessment of CBP in the practical context of an actual Defence White Paper. In contrast, Australian academics are more active in this regard and a number of papers have been published that critique the methodology employed by the 2009 Defence White Paper. Examples in this regard include, *Dangerous Luxuries* and *Mind the Capabilities Gap* (Angevine 2011), *The Importance of the inner arc to Australian Defence Policy and Planning* (Dibb 2012) and *The Australian 2009 Defence White Paper: Analysis and Alternatives* (Langmore, Logan, and Firth 2010). Analysis of a similar type is also presented in *The Making of the 2009 Defence White Paper* (Walters 2009). Alternative methods of defence planning, is also a feature of *An Alternative approach to Defence Capability Planning* (Hodge and Walpole 2009). This paper, which seeks to improve Australia's capability based defence planning model by improving the accuracy with which strategic priorities are matched with practical capabilities, advocates a double loop system of learning. Nevertheless, the focus of this paper is something of a rarity in Australia, as the vast majority of Australian academic papers concentrate on capability planning outcomes rather than providing a critique of the systems that generate them. Despite this shortcoming, it is nevertheless important that academic critique of a varying nature is available for consideration. However, this is unlikely to be the case in the months immediately following the release of a Defence White Paper. Importantly, a number of significant academic papers relating to the 2009 Defence white Paper were not available until 2010 or later and this is why the most recent Australian Defence White Paper, released in May 2013, is not considered by this thesis.

In addition to contemporary academic papers focused on the 2009 Australian Defence White Paper, this thesis also has need for research focused on Australian defence policy in a broader, macro sense. Notably, CBP must not be seen in isolation but rather as part of whole of government solutions. As a consequence, historical context is an important influence with regards to defence planning. Relevant

Australian research in this respect includes *The Conceptual Basis of Australia's Defence Planning and Force Development Structure* (Dibb 1992) and *Four Decades of the Defence of Australia* (White 2002). Both papers present an historical analysis of Australian defence planning and thus bring a great deal of contemporary context to the defence planning environment. Hugh White, Professor of Strategic Studies at the Australian National University, is a particularly active defence researcher and has also published widely on defence issues before and after the release of the 2009 Australian Defence White Paper. *Beyond the Defence of Australia: Finding a new balance in Australian Strategic Policy* (White 2008) and *Muddled Report Leaves Gaps in our Defence* (White, 2009) are relevant to any discussion considering the practical merits of the 2009 Australian Defence White Paper. Both papers suggest a number of methodological inconsistencies between high level strategic guidance and capability recommendations. This is also a point also stressed by De Spiegeleire in her analysis of defence planning in NATO states (De Spiegeleire 2009), suggesting this is a recurrent problem faced by capability based defence planners.

As is the case in Australia and New Zealand, Canadian government documents, which include a plethora of references to CBP, provide an important reference point for research regarding Capability Based Planning in Canada. The foremost example in this regard is the *Canada First Defence Strategy* or CFDS (Canadian Department of National Defence 2008). The *Report on Plans and Priorities* (Canadian Department of National Defence 2008) is another relevant document albeit this fiscally focused analysis is related to CBP by extension rather than explicitly. In contrast to New Zealand in particular, critical appraisal of CBP is not completely absent from official Canadian agencies and in this respect Canada's Defence Research and Development agency (DRDC) is quite active. For example, *Force Planning Scenarios: Methodology, Experiences and Lessons from the Canadian Department of Defence* (DRDC 2010) provides an important critique of key CBP elements and questions the appropriateness of scenario selection, a key CBP input. DRDC researchers have also published an analysis of defence capability integration issues under the title *Unifying Capability Integration Analysis* (DRDC 2011). This research document, which seeks to identify the most advantageous mix of defence capabilities, focuses on the defence "optimisation problem" that lies at the core of CBP (Kerzer 2011, 1). The DRDC has also been active with regards to the interaction between CBP and the practical implementation of defence capability decisions. In 2005 DRDC researchers published a discussion paper titled, *Cap DEM: Towards a capability engineering process*, that presents a "systemised" CBP focused tool to support the acquisition of new defence capabilities (Lam 2005, i).

Canadian academics have also been active with regards to the assessment of Capability Based Planning in its own right. Nevertheless, as with Australia, most of the focus involves an analysis of the

policy settings generated as opposed to the integrity with which planners adhered to the CBP methodology itself. However, several notable exceptions to this exist. For example, *The Canada First Defence Strategy One Year On* (McDonald 2009) criticises the CFDS on the basis of inconsistencies between defence policy recommendations and high level strategic guidance. This is also the focus of an analysis titled *A CF Strategic Capability Planning Process* (Morrisey 2009). Critique of a similar nature is also a feature of a paper titled *Strategic Capability Investment Plan* (Sloan 2006). Published prior to the release of the CFDS, this paper questions the efficacy of capability recommendations made by successive Canadian governments. Planning inaccuracies are also the topic of another significant Canadian academic paper, *Operational Research Tools supporting Force Development Process for Canadian Armed Forces* (Blakely, Billyard et al. 2009). As part of an attempt to objectify capability trade-off decisions, this analysis examines the utility of systematising Canada's CBP process in order to avoid subjective conclusions. Analysis of a similar concept was released in an earlier paper titled *Modelling and Simulation and Capability Engineering Process* (DRDC 2006). This was published as part of a research project to optimise "trade-offs" between competing capabilities (Mokhtari 2006, 5.1). However, whilst this paper advocates a number of improvements to the CBP model this analysis does not extend to all stages of the TTCP Capability Based Planning model.

Academic journals such as the *Canadian Naval Review* have also published a number of articles of relevance to CBP. This includes analysis that also questions the degree of consistency between high level strategic analysis and capability decisions taken by the CFDS, as well as criticism regarding defence budgeting processes (Perry, Lerhe and Hansen 2013). Canadian House of Commons reports, as well as reports from the Canadian Auditor General and Treasury Board, are also important in this respect. Similarly, the Canadian Defence & Foreign Affairs Institute (CDFAI) published an important critique of the CFDS in titled *The CFDS One Year Later* (CDFAI 2009). As for other relevant literature, no books have been published that critique the use of CBP in Canada's defence planning apparatus. However, analysis of Canadian defence policy as a whole is widely available. An important example in this regard is *For International Security: Canada's Defence Policy at the turn of the Century* (Bland and Maloney 2004). This book provides important historical context for the analysis of CBP in Canada.

A number of books dealing with the generalised theme of defence policy making in the United States (US) are also available. For example, *American Defense Policy* (Bolt, Colletta and Shackelford 2005) provides a broad overview of policy settings albeit with minimal analysis of CBP. In general, it is very difficult to find academic books that deliver anything other than an assessment of defence policy outcomes. Consequently, critical analysis of the defence planning process in the United States is somewhat lacking. However, *Strategic issues and Options for the Quadrennial Defence Review (QDR)* (Davis, Kugler and Hillestad 1997) is a very important exception. This book, which predates Davis'

work on defence planning, suggests a number of improvements relevant to the analysis framework employed by the QDR, perhaps the most high profile example of United States defence planning. This academic work, which has a similar focus to a latter research paper titled *Capabilities Based Planning – How it is intended to work and challenges to its successful implementation* (Walker 2005), highlights an apparent lack of consistency between stages of the defence planning process. This is also a focus of *The QDR – Analysing the Major Defense Review Process* (Gordon 2005). Nevertheless, this group of research papers deal only with CBP in the United States context and analysis does not extend to TTCP or NATO states.

It is also noticeable that most analysis regarding the application of CBP in the United States is the preserve of academic journals rather than published books. Important contributions in this respect include articles such as, *America needs a permanent independent panel to stress test the Pentagons QDR strategy* (Eaglen 2012) and *The QDR in Perspective* (Hadley and Perry 2010). Numerous other academic articles provide an analysis of American defence policy setting but the vast majority differ from the focus of this thesis. It is nonetheless noteworthy that CBP occupies a pivotal place in American defence policy. For example, *QDR 2010* (United States Department of Defense) makes frequent reference to Capability Based Planning and from this it is clear that CBP is the dominant defence planning methodology. With this in mind, official agencies seem reasonably open to question its effectiveness. For example, published by the United States Congress, *QDR – Background, Process and Issues* (Brake 2001) examines both the integrity and consistency of the Capability Based Planning model upon which the QDR process is based. CBP has also been the focus of research undertaken by the United States armed forces. Presented to the US Joint Chiefs of Staff by Cdr T Kiefer, *Capabilities Based Planning & Concepts* (Kiefer 2005), includes a critique of CBP and questions the consistency of the capability based planning process adopted by QDR.

The *National Security Strategy (NSS) 2010* (White House 2010) is also a document of considerable relevance to the contemporary application of CBP in the United States. However, to the extent this provides the strategic template for subsequent capability decision making, the NSS does not in its own right deal with CBP. Importantly, the NSS is augmented by a number of other pieces of analysis that collectively provide the strategic and security guidance that is pre-requisite for latter stages of CBP. In this respect, the *2011 National Military Strategy* or NMS (United States Department of Defense 2011) is a good example albeit that this document is also a high end macro analysis. Nevertheless, given the importance of strategic guidance to subsequent CBP phases, a critique of both the NSS and NMS is important. An important example in this regard includes *The 2011 National Military Strategy: Resetting a Strong Foundation* (Kruger 2011) published by the Institute of Land Warfare. Achieving consistency between strategic guidance and actual defence planning outcomes is

also a topic explored by researchers from the Center for Strategic & International Studies (CSIS). In a paper titled *Creating Reality-Based Strategy, Planning, Programming and Budgeting* (Cordesman 2012) the CSIS seeks to find a way to improve the effectiveness with which the United States translates strategic “concepts” into effective capability based planning (Cordesman 2012, 1).

CBP is also central to defence planning in the United Kingdom (UK) and the importance of capability based planning is a clear theme in books such as *The Development of British Defence policy Making* (Brown 2010). This book provides an important overview of contemporary defence policy in the United Kingdom and also provides a critique of official policy documents. Crucially this includes the *National Security Strategy* (NSS) and *The Strategic Defence and Security Review* (SDSR) both released by the United Kingdom Government in 2010. These major policy statements, which are based on the Capability Based Planning template, provide a particularly salient way by which to assess the efficacy and usage of CBP in the UK. Importantly, both documents provide a means by which to compare the theoretical mechanics of the TTCP’s own Capability Based Planning model with the actual processes employed by UK government departments. As such they are highly relevant to this thesis.

UK government agencies have also completed important research regarding CBP and defence planning in general. For the most part this has been led by the UK Defence Science and Technology Laboratory (DSTL). For example, *Strategy & Capability CDEII* (DSTL 2011) questions the extent to which CBP includes all variables relevant to SDR. However, as is the case in other TTCP member states, the critique of CBP as a process is essentially the preserve of academics not government. In this regard important examples include: *Unbalancing the Force – Prospects for UK Defence after SDR* (Chalmers 2010), *The Eight Reasons Why the UK’s SDR Must Not Savage its Military* (Ibrahim 2010), *The Next UK Defence Review Must Do Better* (Kirkpatrick 2011), *The British Way of Strategy Making* and *UK National Security Council lacks capacities to deliver coherent defence strategy* (Prins 2011). Inconsistency of process is a recurrent criticism in all of these research documents and this is a theme furthered explored in a number of research articles published by RUSI (Royal United Services Institute). This includes *The National Security Strategy*, a critique of the 2010 National Security Strategy (Clarke 2010).

Other academic research relevant to the use of CBP in the UK includes a paper presented by Cambridge Universities Centre for Technology Management to the 11th *International Command and Control Symposium* (Kerr, Phaal and Probert 2006). This paper, which has some commonality with Canadian research regarding organisational research techniques, seeks ways to objectify the use of CBP. Non academic viewpoints are also pertinent to any assessment of CBP in the UK. This includes articles such as *A Comprehensive Approach* (Jackson 2009) and defence journals such as

Disarmament Diplomacy and the contributions of ‘think tanks’ such as the *Acronym Institute*. It is also very important to consider House of Commons submissions when assessing the consistency and accuracy of the CBP process in the UK. Public submissions, such as contributions from academics and retired armed forces officers, provide a source of informed critique regarding the efficiency of defence capability decision making in the UK. The most important information sources include *Hansard* records relating to the Defence Select Committee and House of Lords defence debates.

In sharp contrast to the United Kingdom and other TTCP members, public submissions are not part of defence policy formulation in Singapore. Defence planning is comparatively opaque. As a result, it is difficult to obtain critical analysis of defence policy decisions and planning processes. However, although the accessibility of documents dealing with actual Singaporean defence planning processes is comparatively limited, major policy statements such as *Defending Singapore in the 21st Century* (Singapore Government 2001) and *The Fight Against Terror* (Singapore Government 2004) are freely available. These documents provide an insight into the use of CBP as well as the effectiveness of Singapore’s defence planning methodology. Academic analysis is also available. *Defending the Lion City* (Huxley 2000) is perhaps the most important background book with regards to Singaporean defence policy and this publication also outlines the cultural, strategic and historical themes that continue to exert influence today. This is a theme also accessible in an analysis of the Five Power Defence Relationship (FPDA), *Malaysia, Singapore and the Road to the Five Power Defence Arrangements* (Guan 2011). Similarly, *The Singapore Story*, (Yew 1998) also provides historical context from the perspective of Singapore’s most influential politician. In addition to this, a number of officers from the Singaporean military have also published research articles of relevance to defence planning processes in Singapore. Examples include articles from LG Neo Kian Hong, Chief of the Singaporean Defence Force published in *Pointer* magazine, *Small Country Total Defence: A Case Study of Singapore* (Matthews and Yan 2007), *Rethinking the British Legacy* (Leong 2011) and *Singapore’s Military Modernisation* (Yamaguchi 2012). Nevertheless, it is notable that the availability of defence planning analysis from academics is significantly less in Singapore than is the case in TTCP member states.

With this in mind, offshore academics have published several important papers dealing with defence planning in Singapore. Examples include, *Singapore’s Defence Policy in the new Millennium* (Tan 1998) and “Singapore’s Burgeoning Armed Forces – A Steadying Force” (Vreeken 2012) published in *Contemporary South East Asia*. Both articles provide an insight regarding the defence planning template employed in Singapore as well as a critique of the subsequent policy settings. Tan has also published an important analysis of Singapore’s defence capabilities. Titled *Singapore’s Defence: Capabilities, Trends and Implications* (Tan 1999), research does not directly deal with CBP. However,

Tan's research provides an excellent overview of Singaporean strategic culture and hence the environment in which defence planning decisions are taken. Other articles relevant to this issue include *Examining The Defence Industrialisation – Economic Growth Relationship; The Case Of Singapore* (Kuah and Loo 2004). Further important background information relating to Singapore's approach to defence capability and planning can be found in defence industry periodicals such as *Military Technology*. However, as this publication has frequently been used by the Singaporean Ministry of Defence to publicise defence policy decisions, its use must be regarded with some caution. Nevertheless, as is the case in TTCP states, official statements such as these are relevant to defence planning. A good example in this regard is a 2010 article *Meeting the Challenges of Singapore Defence* by Singapore's Defence Minister Teo Chee Hean which justifies Singaporean defence policy on the basis of important cultural priorities present within Singaporean society. This issue has also been explored by academics. For example, the complex relationship between strategic culture and defence capability in Singapore is outlined in an article titled *Singapore's Total Defence* (Weichong 2011) published in the *Eurasia Review*.

As in Singapore, research regarding Finnish defence policy and capability planning is available from a diverse collection of groups. Relevant papers have been published by academics, military officers and government agencies. Important examples include, *Finland's Comprehensive and Military Defence doctrines responding to emerging threats and technologies* (Salminen 2011) and *Modernising the Finnish Defence Force* (Sallinen 2007). Similarly, a paper titled *Finnish Defence Forces in Transformation* (Aikio 2009) outlines a number of contemporary defence issues, including a critique of defence planning processes. All of these papers propose improvements to Finnish defence planning processes. However, a common focus involves achieving consistency between high level strategic priorities and defence capability outcomes. It is also notable that Finnish military and defence history is covered by a multitude of books. The most important of these provide the historical context that continues to influence modern Finnish defence policy and Finland's unique strategic culture. Books include *White Death: Russia's War on Finland 1939-40* (Edwards 2006), *The Winter War – The Soviet Attack on Finland 1939-40* (Engle, Paananen E and Paananen L 1973) and *Cold Will: The Defence of Finland* (Tomas 1980).

Government defence documents are also fundamental to any assessment of Finnish defence policy processes and provide a means by which to assess the influence and application of Capability Based Planning in Finland. Important contemporary examples include: *Finnish Security and Defence Policy (2009)* published by the Finnish Prime Minister's Office and *The Security Strategy for Society (2010)* published by the Finnish Ministry of Defence. Academic critique of recent defence policy settings is also widely available albeit often in Finnish and subsequently difficult to assess for non Finnish

speakers. The most important of these include: *Keeping All Doors Open ... Neutrality in Post Cold War Finland* (Lapczynski 2009) and *To be or Become European – Westernising Narratives in Post Cold War Finland* (Dragomir 2009). However, as is the case in both the TTCP group of states and Singapore, most academic work is firmly oriented towards examining defence policy settings and not the methodology that generates them.

This is a theme clearly present across all of the states surveyed. Most academic work is tightly focused on presenting a critique of policy settings and outcomes not the process by which these are generated. The only real exception in this regard is the relative availability of research focused on identifying inconsistencies between strategic guidance (the start of CBP) and actual policies (the end of CBP). However, very little analysis is available that deals with identifying inconsistencies across the full CBP model. As a consequence there is a relative paucity of research regarding the application and consistency of Capability Based Planning in subject countries. With this in mind, Durrell-Young's observation in this regard is again highly relevant. It is unsurprising that White Papers and government agencies avoid making critical analysis regarding the use and application of CBP. This is not their primary focus.

Similarly, comparative research similar to this thesis topic is almost totally lacking. Nevertheless, it must be acknowledged that a small number of scholarly articles have been published highlighting differences in the way CBP is applied in TTCP member states. Research published by Sharon Caudle in the Fall 2005 edition of *Homeland Security Affairs* provides a very good example. "Homeland Security Capabilities Based Planning: Lessons from the Defense Community" (Caudle 2005), identifies a number of variations in the application of the CBP model amongst TTCP members. Despite this, Caudle does not extend this analysis to include non TTCP states.

Other researchers have also sought to identify ways to improve the usage of CBP without the use of country comparatives. Examples include, *Capabilities Based Planning – How It Is Intended To Work, And Challenges To Its Successful Implementation* (Walker 2005). However, Walker's research is almost totally focused on the application of CBP in the United States alone. Other states are mentioned only in passing. The focus on the United States alone is also common to other academic work seeking to improve the current application of CBP. For example, *Improving the current DHS Capabilities Framework* (McCowan 2008) proposes a number of adaptations in order for the generic CBP model to be used for homeland security. However, this analysis does not constitute an analysis of Defence White Papers or a practical critique of CBP in its own right outside the US. Given that comparative approaches to defence policy making are also relevant to this thesis, *Defence Policy Making: A Comparative Analysis* (Dillon, 1988), illustrates how cultural and historical contexts are

highly influential in the policy making process. Nevertheless, whilst Dillon's work focuses on comparatives, this does not extend to the application of Capability Based Planning.

It is therefore apparent from the literature review that that comparative research involving practical examples of CBP focused on Defence White Papers is extremely difficult to locate. As a result, it can also be stated with some confidence that academic analysis of this topic has not been undertaken to the extent proposed by this thesis, that is to identify what aspects of Capability Based Planning in TTCP member states, Singapore and Finland could be used to improve the manner in which CBP is applied in New Zealand.

Summary

Along with identifying leading CBP theorists, this Literature Review has sought to locate examples of research that analyse the accuracy and consistency with which CBP is practised in a number of states. This is seen as a way to discover whether New Zealand can introduce improvements to the way in which CBP is applied in this country. Defence White Papers and their equivalents provide an important means by which to assess the methodological consistency of defence planning in a practical setting. However, academic critique is relatively one dimensional to the extent that outcomes, not process, tend to be the focus of scholarly writings. This thesis attempts to remedy this shortfall. It is also difficult to identify existing research that compares and contrasts the application of CBP across a number of states. Again, this thesis attempts to provide such an analysis.

Chapter 3: Research Methodology

As has been outlined in the introduction, the intention of this thesis is to assess practical examples of defence planning in order to determine the extent to which these follow the TTCP model of capability based defence planning. It is also intended that this analysis will facilitate an assessment regarding the degree to which actual defence planning outcomes are consistent with the TTCP model and to identify ways to improve New Zealand defence planning. Consequently, the TTCP model acts as a crucial methodological reference point, providing what researcher Robert Yin describes as an essential “theoretical proposition.”¹⁴ The importance of an organising methodological principle is also an issue acknowledged by Yan and Gray¹⁵ and they extend this concept to emphasise a “theoretical framework” as a vital pre-requisite for a well functioning research project.¹⁶

Research methodology is defined by Oliver as a paradigm impacting “the design of the research, the theoretical orientation and approach to data analysis.”¹⁷ With regard to Oliver’s definition, the theoretical orientation of this thesis is qualitative whilst the approach to data analysis utilises comparative case study methodology. With reference to Walliman’s work regarding research methodologies, this approach draws upon what is referred to as “comparative research”, a methodology that is “commonly applied to cross cultural and cross national contexts.”¹⁸ Walliman’s methodological model is well suited to this thesis. Crucially, research is focused upon the provision of a comparative analysis of Defence White Papers in number of different states, each with its own set of cultural, bureaucratic and political contexts.

This highly practical orientation is also relevant to the methodology chosen. Importantly, Yin regards practicality as a defining characteristic of comparative case study methodology.¹⁹ This can be seen in Yin’s definition of comparative case study research “as an inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.”²⁰ Yin’s reference to multiple sources of evidence also has commonality with Johansson’s view that to be effective a case study must comprise “a complex functioning unit, be investigated in its natural context ... and be

¹⁴ Yin, R, K. *Case study research: Design and methods* (Newbury Park, CA: Sage Publications, 1984), 23.

¹⁵ Yan, A and Gray, B., “Bargaining Power, Management Control, and Performance in United States – China Joint Ventures: A Comparative Case Study,” *Academy of Management Journal*, Vol. 37, No. 6 (1994): 1480.

¹⁶ *Ibid.*

¹⁷ Oliver, P. *Writing Your Thesis* (London: Sage Publications, 2004), 29.

¹⁸ Walliman., N. *Social Research Methods* (Newbury Park, CA, Sage Publications, 2005), 39-40.

¹⁹ Yin. *Case study research: Design and methods*, 21.

²⁰ *Ibid*, 23.

contemporary.”²¹ The group of White Papers analysed by this thesis are recent, complex in nature and examined in their natural defence planning framework or context. As a result, the comparative case study methodology employed by this thesis is considered to be well suited to the subject matter under examination and well aligned with the thoughts of both Yin and Johansson.

The appropriateness of the comparative case study methodology employed by this thesis is also relevant to Yin’s reference to the “collective” case study approach.²² This is appropriate when a group of case studies are to be researched. This is also a point of considerable importance to other researchers. For example, Tellis believes groups of case studies are “selective” and therefore benefit is gained by concentrating on a small number of key issues that are essential to the “system” being examined.²³ To the extent that the “system” being researched comprises a number of practical examples of defence planning, or “collective”, this thesis draws upon the approach to case study analysis advocated by both Yin and Tellis.²⁴ Nevertheless, this does not mean the comparative case study methodology adopted is what Tellis refers to as “sampling research.”²⁵ These are points also stressed by Feagin, Orum, & Sjoberg who also regard comparative case study as well suited to research that requires “in-depth analysis.”²⁶ Likewise, they also stress that this does not extend to statistical “sampling.”²⁷

This is an important methodological point. Given the recognized compatibility between comparative case study methodology and topics of great complexity, statistical sampling was not actively considered for use by this thesis. Most importantly, as Feagin, Orum, & Sjoberg advocate, comparative case study methodology is viewed as the most appropriate means by which to pursue research of holistic and practical real life processes that consist of numerous ever changing variables.²⁸ These are important characteristics of defence planning. Furthermore, a Defence White Paper is perhaps the most thorough manifestation of defence planning that a sovereign state can undertake. This is a multifaceted process that draws upon numerous public sector and individual submissions that give thought to the usefulness of current policy settings. This is a process at odds with the collection of quantitative data.

²¹ “Case Study Methodology,” Johansson, R., accessed August 12th, 2013, <http://www.infra.kth.se/bba/IAPS%20PDF/paper%20Rolf%20Johansson%20ver%202.pdf>

²² Yin. *Case Study Research*, 2.

²³ Tellis., W. “Application of a Case Study Methodology,” *The Qualitative Report*, Vol. 3, No. 2 (July 1997): 2, accessed August 13th, 2013. <http://www.nova.edu/ssss/QR/QR3-2/tellis1.html>

²⁴ *Ibid.*

²⁵ *Ibid.*

²⁶ Feagin, J., Orum, A., & Sjoberg., G. (eds.), *A case for case study* (Chapel Hill, NC: University of North Carolina Press, 1991), 27-79.

²⁷ *Ibid.*

²⁸ *Ibid.*

Nevertheless, given the importance of methodology selection to this thesis, it is also imperative to review not only the merits but also the shortcomings of comparative case study methodology. Consequently, criticisms regarding case study methodology as a whole must be considered. As Tellis suggests, comparative case study methodology is regarded as the most appropriate approach for in-depth research involving a relatively small number of highly complex “systems.”²⁹ However, this framework has a serious embedded flaw. It is difficult to determine if findings are truly correct given the inevitably small number of case studies to be researched and the inevitable complexity of the subject matter. This conundrum is highly relevant to this thesis. Defence White Papers and defence planning in general, tend to represent the culmination of numerous internal defence planning processes and pieces of analysis, as well as external research and commentary. In recognition of this, it is important that effort is made to examine the various components of defence planning that come together to create a Defence White Paper including, but not restricted to, strategic analysis/government guidance, capability goals and force development options. It is not sufficient to consider the merits of a White Paper without also examining the other elements of government, such as Treasury, that are also involved in such a high profile public policy document. Just as important in this respect are sources of secondary data. This includes reference to news articles along with the thoughts of politicians and other observers.

The centrality of the TTCP model to this thesis also presents a methodological difficulty. Although Yin, supported by Yan and Gray, stress the usefulness of a single theoretical proposition, or construct, such as the TTCP template, such dependence raises the risk of what Eisenhardt refers to as “preconceived theoretical notions.”³⁰ However, it is important to note that other researchers are more comfortable with this entrenched problem. For example, Parkhe suggests it is virtually impossible to achieve complete sanitisation in this respect such is the extent to which predetermined conceptions are embedded.³¹ It is also important to emphasise that this thesis does not seek to make judgement as to the utility of the TTCP model as a theoretical proposition in its own right. Rather it simply seeks to assess the extent to which the TTCP model has been adhered to as part of an attempt to identify possible improvements to New Zealand defence planning.

Use of the TTCP model to assess past examples of defence planning is also open to criticism on the basis that historical analysis is often ill-suited to comparative case study. This is a point raised by Zucker who suggests case study methodology has more usefulness when used “prospectively” as

²⁹ *Ibid.*

³⁰ Eisenhardt, K., M, “Building theories from case study research,” *Academy of Management Review*, 14 (1989): 532-550.

³¹ Parkhe, A. “Messy research, methodological predispositions, and theory development in international joint ventures,” *Academy of Management Review*, 18 (1993): 227-268.

opposed to “retrospectively.”³² Nevertheless, it should also be noted that Zucker accepts that the latter usage still has some “utility.”³³ Landman is another critic of comparative case study methodology albeit on the basis that “inferences made from single country studies are less secure than those made from the comparison of several or many countries.”³⁴ However, this particular criticism does not in itself extend to this thesis given that the research focus includes seven different states.

Although comparative case study methodology is thought to be the most appropriate for this thesis, some discussion as to why alternative methodologies were rejected is also considered worthwhile. Smelser refers to comparative case study methodology as one of three “fundamental strategies of research”, the other two being “experimental” and “statistical.”³⁵ With regards the latter, defence planning, whilst highly structured, does not provide a great deal of empirical evidence, or data, apart from fiscal budgets. Given this, quantitative, or empiricist, methodologies were rejected as inappropriate. Experimental methodology, whereby one group is exposed to a “stimulus” and the other is not, was also rejected. Again this decision reflects the nature of defence planning. It is simply not possible to find two states with identical strategic circumstances and then simply apply defence planning systems to one and not the other, in order to establish causality.

It should also be noted that ethical and security considerations are also relevant to the choice of research methodology given the importance of qualitative information to comparative case study research. Importantly, the security sensitive nature of defence planning means research must rely heavily upon public, or open source documents, augmented by academic journals and books by defence analysts. This reliance is arguably greater than is the case with most other research as access to highly relevant information, such as sensitive internal government analysis, is severely restricted. Consequently, source information is also likely to be highly concentrated. Furthermore, given the incomplete information set that exists in the public domain, factual inaccuracies are likely to be difficult to identify.

The relative singularity of information source is an issue that also extends to practical considerations. Concentrated information sources will inevitably expose research to the risk of ‘capture’. This problem is particularly acute in New Zealand given the small size of the defence community,

³² Zucker, D.,M. “Teaching Research Methods in the Humanities and Social Sciences How To Do Case Study Research,” *School of Nursing Faculty Publications Series*, Paper 2, Chapter 14 (2009): 1.

³³ *Ibid.*

³⁴ Landman, T. *Issues and Methods in Comparative Politics: An Introduction* (3rd ed.), (London: Routledge, 2008), 67.

³⁵ Smelser, H., G. "Notes on the Methodology of Comparative Analysis of Economic Activity," (paper presented at the Sixth World Congress of Sociology, International Sociological Association, Evian, 1966), printed in *International Sociological Association Journal*, Vol. 2: 101-17.

academic as well as government. Recognition of this issue is important as the efficacy of comparative case study methodology depends upon impartial inputs. Whilst, a wide a range of independent sources is a crucial pre-requisite for all research, this is a concern of particular relevance for this thesis.

Chapter 4: Capability Based Planning

New Zealand is a member of the Technical Co-operation Program (TTCP). Along with its TTCP partners, New Zealand has spent much of the last decade or more, implementing Capability Based Planning to aid long term planning of defence force structures and manage resources efficiently.³⁶ As the TTCP itself notes, each nation employs local nuances.³⁷ Nevertheless, the basic elements of CBP are common to all practitioners.³⁸

Academic Paul Davis, an early proponent of CBP and a policy analyst at the Rand Corporation, is widely acknowledged as one of the foremost academic writers on CBP, and TTCP documents commonly quote him.³⁹ Davis describes Capability Based Planning as:

- *“Planning, under uncertainty, to provide capabilities suitable for a wide range of modern day challenges and circumstances while working within an economic framework that necessitates choice.”*⁴⁰

The NATO (North Atlantic Treaty Organisation) *Handbook in Long Term Defence Planning* also provides a definition of CBP.

- *“This method involves a functional analysis of operational requirements. Capabilities are identified based on the tasks required ... once the required capability inventory is defined; the most cost effective and efficient options to satisfy the requirements are sought.”*⁴¹

The focus on “capabilities” is in sharp contrast to the “threat based” models that dominated defence planning during the Cold War centring on “identifying who the adversaries were and where and how they might threaten.”⁴² However, the defence community is a comparative late adopter of the capability based approach. Commercial applications of capability based methodologies have been

³⁶ “Capability Management Framework,” New Zealand Defence Force, accessed March 17th, 2013, <http://www.nzdf.mil.nz/public-documents/soi/2007/part-a/section-2/capability-mangement>

³⁷ “Guide to Capability Based Planning,” 5.

³⁸ *Ibid.*

³⁹ *Ibid.*

⁴⁰ Davis, *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation*, xi.

⁴¹ NATO Research and Technology Board: Panel on Studies, Analysis and Simulation (SAS), *Handbook in Long Term Defence Planning* (Neuilly-sur-Seine: NATO, 2003), accessed March 20th, 2013, [http://ftp.rta.nato.int/public//PubFullText/RTO/TR/RTO-TR-069///TR-069-\\$\\$TOC.pdf](http://ftp.rta.nato.int/public//PubFullText/RTO/TR/RTO-TR-069///TR-069-$$TOC.pdf)

⁴² Caudle, S., “Homeland Security Capabilities-Based Planning: Lessons from the Defense Community,” *Homeland Security Affairs*, 1, 2, Fall (2005): 4.

used in the private sector since the 1950's and Business schools continue to contrast "Top Down/Pull" (capability based) and "Bottom Up/Push" (threat based) marketing strategies.⁴³

In the defence context, "Bottom Up/Push" involves a CBP framework that focuses attention on "what we need to do rather than what equipment we are replacing."⁴⁴ This process can be portrayed diagrammatically and, as figure 1 indicates, CBP is essentially a series of inter-related phases. The ultimate aim of this disciplined approach is to identify and then implement a practical defence plan, one that is achievable within given budgetary parameters.

⁴³ Webster, F.,E, "Understanding the Relationships Among Brands, Consumers and Resellers," *Journal of the Academy of Marketing Science*, 28, 17 (2000): 17-23.

⁴⁴ "Guide to Capability Based Planning."

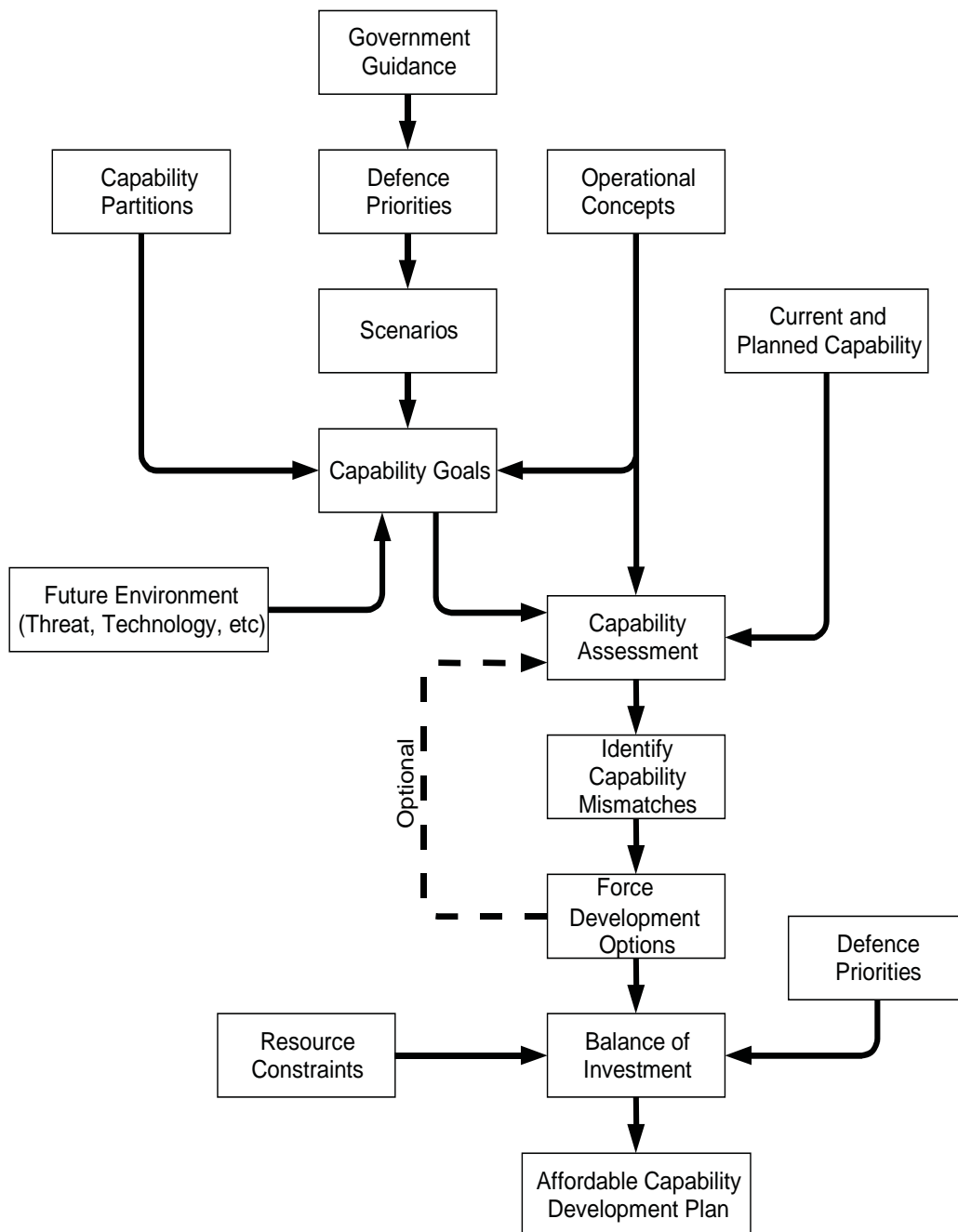


Figure 1. Generic Process of Capability-Based Planning (Source: TTCP)⁴⁵

⁴⁵ Ibid.

A particularly important feature of the CBP process is the use of scenario analysis to identify capability gaps.⁴⁶ Scenario analysis reflects the type of “real world” tasks a Government expects its defence force to provide and asks that defence forces work on a holistic basis to meet these requirements.⁴⁷ Identifying the required capabilities also provides a “means to compare different options to achieve the same capability.”⁴⁸ As trade-off decisions are inevitable, CBP provides a structure to aid the development of force options within available defence budgets.⁴⁹ In doing so, CBP provides the framework needed for military forces and government officials to assess the consequent strategic risks that certain courses of action generate. In this way, CBP can be regarded as a risk management tool, a way of dealing with what Davis refers to as “the burden of uncertainty.”⁵⁰

Cynics might suggest such claims overstate what CBP can achieve. After all, history shows defence planners are rarely right when it comes to positioning for and predicting future events and threats.⁵¹ However, as Davis also notes - “the essence of capabilities-based planning, is to deal with future uncertainty by generating capabilities usable for different purposes and circumstances.”⁵² As a consequence, CBP provides a paradigm that seeks to avoid over specialisation of individual services or what is often referred to as “stove piping.”⁵³ CBP’s holistic focus therefore emphasises agility, flexibility of purpose and service inter-operability within a given resource constraint.

Nevertheless, as Figure 1 indicates, the holistic nature of CBP also means that the process can be extremely complicated, involving a multitude of participants and prescriptive stages. However, as Figure 1 also indicates, this process can be simplified by breaking it down into compartments.⁵⁴ Each of these is outlined below:⁵⁵

- a. Government Guidance: High Level, strategic analysis from Government.
- b. Defence Priorities: A statement of priority defence objectives.
- c. Scenarios: Based on *Defence Priorities*, scenarios are generic tasks and/or real world tasks. These must be specific and reflect what a Government wants its defence force to do and within what time period(s).

⁴⁶ NATO. *Handbook in Long Term Defence Planning*, iii.

⁴⁷ “Guide to Capability Planning”.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

⁵⁰ Davis, P., K. “Uncertainty Sensitive Planning,” in *New Challenges, New Tools for Defense Decision Making*. ed. Johnson, S., E et al. (Santa Monica: Rand, 2003), 134.

⁵¹ *Ibid.* 131-132.

⁵² *Ibid.* 142.

⁵³ *Ibid.*

⁵⁴ “Guide to Capability Planning”.

⁵⁵ *Ibid.*

- d. Capability Goals: What capabilities are required to meet the challenges of a specified scenario? These goals must also recognise the importance of:
- Capability Partitions – Actual military assets, or clusters, designed to perform a specified task or delivered effect. This can involve multiple or singular partitions of a defence force.
 - Operational Concepts – Top level doctrine. How a force will fight or tackle a given Scenario using the assets at its disposal.
 - Future Environment (threat, technology etc) – How will the future impact capability needs and deliverability?
- e. Capability Assessment: Holistic assessment of current capability options and future capabilities once planned investments are delivered.
- f. Identify Capability Mismatches: Identification of capability gaps based on Capability Assessment.
- g. Force Development Options: What investment is needed to address these capability gaps?
- h. Resource Constraints: Fiscal/budgetary boundaries.
- i. Balance of Investment: Which Force Development Options deliver the greatest benefit? Decisions are made with direct reference to Resource Constraints. As this process will inevitably involve trade off decisions, guidance must come from *Defence Priorities*.
- j. Affordable Capability Plan: Practical and implementable output of stages a.-i.

The defence planning model outlined above exists in both a theoretical and practical context. With this latter application in mind, subsequent chapters will consider practical examples of defence planning and use the generic TTCP model as a way to assess the efficacy of processes and final outcomes in a diverse group of states. With an initial focus on TTCP members, starting with New Zealand, this will be extended to include Singapore and Finland.

Chapter 5: Capability Based Planning in the New Zealand context

Practical application of CBP in New Zealand

Defence planning in New Zealand is essentially shared between the New Zealand Defence Force (NZDF) and the New Zealand Ministry of Defence (MoD). The former is responsible for advising the Government on the defence of New Zealand (policy), the acquisition of military equipment and for auditing the performance of the NZDF.⁵⁶ The NZDF's role is to "manage the armed forces on a day to day basis" and to "deliver the Governments defence policy."⁵⁷ Both MoD and NZDF documents are replete with references to Capability Based Planning, suggesting a broad consensus as to the utility of CBP with regard to force planning.⁵⁸ In the NZ context, CBP is expressed in the term "Capability Management Framework (CMF)."⁵⁹ As one would expect of a capability focused paradigm of its type, the central intent of the CMF is to ensure "effective, long term investments in defence capabilities."⁶⁰ The framework also looks to translate Government security priorities into force capabilities in the most cost effective manner.⁶¹ In this way, the intent of the CMF has strong alignment with the TTCP's CBP model.

It is also notable that many of the elements making up the TTCP's diagrammatic portrayal of the CBP process (Figure 1.) are present in NZDF/MoD structures.

a. Government Guidance: NZDF/MoD equivalent - Defence White Paper

In the New Zealand context, the TTCP's concept of 'Government Guidance' has strong alignment with Defence White Paper 2010. For example, the Defence White Paper 2010 seeks to define New Zealand's basic security interests with reference to an assessment of the "strategic outlook" from 2010 through to 2035.⁶² The Defence White Paper 2010 also outlines the type of defence force the government wants and the type of tasks expected of the NZDF.⁶³

⁵⁶ "The New Zealand Ministry of Defence (NZMOD)," NZMOD, accessed June 10th, 2013, <http://www.defence.govt.nz/>

⁵⁷ *Ibid.*

⁵⁸ "Capability Management Framework."

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

⁶¹ *Ibid.*

⁶² New Zealand Ministry of Defence. *Defence White Paper 2010* (Wellington: New Zealand Government, 2010), 23-35.

⁶³ *Ibid.* 35-45.

- b. Defence Priorities: NZDF/MoD equivalent - Defence White Paper (as well as support analysis such as the annual Environmental Scan)

‘Defence Priorities’ reflect a further refinement of the concept of “security interests” and these are clearly outlined in the Defence White Paper 2010.⁶⁴ Specifically, these describe when New Zealand would “consider the possible use of military force.”⁶⁵ Given the relative infrequency of Defence White Papers and the dynamic nature of the strategic environment, ‘Defence Priorities’ are in practical terms updated more regularly than the White Paper cycle often permits. For example, the ‘Environmental Scan’, conducted by the NZDF on an annual basis, enables a dynamic re-appraisal of defence priorities with reference to changes in the strategic outlook.⁶⁶

- c. Scenarios: NZDF equivalent - Employment Contexts (EC)⁶⁷ /Military Response Options (MRO)⁶⁸/Joint Mission Essential Tasks (JMET)⁶⁹

NATO planning documents suggest that “Scenario Analysis” is the most pivotal aspect of the TTCP Capability Based Planning model.⁷⁰ Importantly, the TTCP itself uses the words “specific” and “realistic” to describe the type of scenarios necessary to “derive meaningful gap assessments.”⁷¹ In the New Zealand context, the NZDF concept “Employment Contexts” is a close match with the TTCP approach.⁷² Publically available as “security events EC1-EC5”, “Employment Contexts” provide the basis for subsequent “Military Response Options” and “Joint Mission Essential Tasks.”⁷³ These define the real world tasks the New Zealand government expects the NZDF to undertake, along with the statement that these are consistent with the governments “defence priorities.”⁷⁴ For example, EC1 describes a set of “Security and Defence Tasks in New Zealand and its environs, a”list that includes an ability to respond to “natural and man-made disasters.”⁷⁵ “EC1-EC5” also provides the basis for all subsequent military planning

⁶⁴ *Ibid.* 15.

⁶⁵ *Ibid.* 16.

⁶⁶ New Zealand Ministry of Defence. “Reporting Timeline for CMB,” (paper presented by NZMOD, Wellington, April 12th, 2012), 1.

⁶⁷ “Employment Contexts,” New Zealand Defence Force, accessed April 13th, 2013, <http://www.nzdf.mil.nz/at-a-glance/employment-contexts.htm>

⁶⁸ “Military Response Options,” New Zealand Defence Force, accessed April 16th, 2013, <http://www.nzdf.mil.nz/public-documents/annual-report/2010/section-3/mil-capability.htm>

⁶⁹ “Management and Utilisation of Mission Essential Tasks,” New Zealand Ministry of Defence, accessed April 17th, 2013, <http://www.defence.govt.nz/reports-publications/evaluation-report-13-2011-management-utilisation-mission/section1-introduction.html>

⁷⁰ NATO, “*Handbook in Long Term Defence Planning*”, iii.

⁷¹ “Guide to Capability Based Planning,” 7.

⁷² “Employment Contexts.”

⁷³ “Management and Utilisation of Mission Essential Tasks.”

⁷⁴ “Employment Contexts.”

⁷⁵ *Ibid.*

decisions, including training and force development.⁷⁶ Security concerns mean detail is lacking but specific “Employment Contexts” ... “ensure that the NZDF is funded, equipped and assessed on its ability to deliver effective military capabilities and meet governments defence policy objectives.”⁷⁷ Nevertheless, operational recommendations are limited by the singularity of advice received. This is a structural challenge common to many defence force organisations due to the non contestable nature of advice which tends to be sourced from within established military institutions such as the NZDF and/or its equivalent.

- d. Capability goals: NZDF equivalents - Capability Requirements List⁷⁸/NZDF Output Plan⁷⁹/ Operational Preparedness Reporting System (OPRES)⁸⁰

TTCP use of the term “Capability Goals” refers to the capabilities needed to achieve “stated objectives.”⁸¹ The most appropriate parallel in the NZ context is the “Capability Requirements List,” which describes the “functions the NZDF can and may need to perform, in order to meet government policy requirements.”^{82 83} The “NZDF Output Plan” is also aligned with this statement of required capabilities as it “shows how the mix of outputs contributes to the achievement of the governments defence policy objectives.”⁸⁴ Furthermore, the Operational Preparedness Reporting System (OPRES), which provides the means to assess levels of “military preparedness,” permits the MoD to monitor compliance with capability goals.⁸⁵ It is notable that the TTCP views the concept of “Capability Goals” through a wide lens.⁸⁶ Whilst “Capability Goals” are formulated with reference to prior stages of the CBP process (Defence Priorities and Scenarios), “Capability Goals” are also informed by several additional elements.⁸⁷ These are outlined below:

⁷⁶ *Ibid.*

⁷⁷ *Ibid.*

⁷⁸ “Capability Requirements List,” New Zealand Defence Force, accessed March 19th, 2013, <http://www.nzdf.mil.nz/public-documents/soi/2007/part-a/section-2/capability-management-framework.htm>

⁷⁹ “NZDF Output Plan,” New Zealand Defence Force, accessed March 20th, 2013, http://www.parliament.nz/NR/rdonlyres/730CAF22-EAC0-4F7B-9412-5A1DEE0A4AD4/194775/49SCFDT_EVI_00DBSCH_EST_10656_1_A188393_StandardEs.pdf

⁸⁰ “NZDF Operational Preparedness Reporting System (OPRES),” New Zealand Ministry of Defence, accessed March 20th, 2013, <http://www.defence.govt.nz/pdfs/reports-publications/evaluation-report-5-2011-nzdf-operational-preparedness-reporting-system.pdf>

⁸¹ “Guide to Capability Based Planning,” 9.

⁸² “Capability Requirements List.”

⁸³ “Military Capability,” New Zealand Defence Force, accessed March 19th, 2013, <http://www.nzdf.mil.nz/what-we-do/military-capability.htm>

⁸⁴ “NZDF Operational Preparedness Reporting System (OPRES).”

⁸⁵ *Ibid.*

⁸⁶ “Guide to Capability Based Planning,” 4.

⁸⁷ *Ibid.*

- Capability Partitions. NZDF equivalents - OPRES⁸⁸ / Military Capability (acronym: PRICIE)⁸⁹ / Strategic Capability Planning Process⁹⁰ / J MET⁹¹

Based on specified scenarios and the assets needed to deal with these, the TTCP term “Capability Partitions” describes capability in terms of its component parts.⁹² To reduce complexity, capabilities are “decomposed ... into manageable pieces” or “partitions.”⁹³ In doing so, the process outlines the capabilities of a defence force in terms of its various capabilities and not individual Service configurations. Inevitably some tasks are able to be accomplished using different blends of capability sets which, invariably, do not align with budget or Service categories. A simple example of a Capability Partition in the NZ context would be the use of both naval and air assets to confront illegal fishery activities. Assessment of capability inevitably requires that stated capabilities are accurate (either single unit or joint). Hence, in the New Zealand context, JMET and OPRES are relevant components of this process. This is augmented by the components of military capability as expressed in the New Zealand Defence Force acronym “PRICIE”⁹⁴ (Personnel/Research & Development/Infrastructure/Concept of operations/ Information & technology/Equipment & Logistics) as well as the Strategic Capability Planning Process concepts Operational Level of Capability (OLOC), Directed Level of Capability (DLOC) and Basic Level of Capability (BLOC).⁹⁵

- Future Environment (threat, technology etc). NZDF equivalent – Technical Trends Assessment: Directorate of Future Force Development

The TTCP concept of “Future Environment” requires consideration of what sort of capabilities will be required and/or available in the future.⁹⁶ These are likely to be both negative (threats) and positive (opportunities). Of necessity, this process involves proactive consideration of future technologies – both commercial and military – as relevant developments, such as cyber warfare, are just as likely to be civilian as military. This may require specialist skills such as those offered by defence technology scientists, academics and/or possibly private sector defence manufacturers. Alternatively, partner states may have a role to play in this regard.

⁸⁸ “NZDF Operational Preparedness Reporting System (OPRES).”

⁸⁹ “Military Capability,” New Zealand Defence Force, accessed March 18th, 2013, <http://www.nzdf.mil.nz/public-documents/soi/2007/part-a/section-2/military-capability>

⁹⁰ “Military Capability,” New Zealand Defence Force, accessed March 18th, 2013, <http://www.nzdf.mil.nz/public-documents/soi/2009/section-6/framework.htm>

⁹¹ “Management and Utilisation of Mission Essential Tasks.”

⁹² “Guide to Capability Based Planning,” 7.

⁹³ *Ibid.*

⁹⁴ “Military Capability.”

⁹⁵ *Ibid.*

⁹⁶ “Guide to Capability Based Planning,” 4.

The Capability Management Board (CMB) in New Zealand currently has no formal role for the Directorate of Future Force Development or the Defence Technology Agency (DTA).⁹⁷

- Operational Concepts. NZDF equivalent - New Zealand Defence Force – New Zealand Defence Doctrine⁹⁸

This stage of the TTCP capability based planning model requires the consideration of “strategic, operational and tactical” concepts.⁹⁹ As the TTCP stresses, this phase of the CBP process is heavily reliant upon the input of “experienced personnel,” particularly senior military officers.¹⁰⁰ Operational concepts are well established across all three NZDF services and these are described in Chapter Four of the NZDF publication “New Zealand Defence Doctrine.”¹⁰¹ This process includes “Joint,” as well as individual, “Future Joint Operating Concepts (FJOC)” and doctrines across all three services.¹⁰²

- e. Capability Assessment: NZDF equivalent –Defence Capability Plan & Defence Capability Management Plan

The Capability Assessment stage within the TTCP CBP model requires consideration of planned and current “force characteristics”¹⁰³ as well as preceding analysis, specifically “Operational Concepts” and “Capability Goals.”¹⁰⁴ The clear intention is to provide a holistic analysis of capability – both now and in the future. Consequently, the TTCP regards defence force composition as a dynamic process. The NZDF has a well developed and explicit capability assessment and capital asset planning process which is embodied in the Defence Capability Plan (DCP).¹⁰⁵ The most recent DCP, completed in 2010, outlines planned force composition and capabilities at various future points, albeit primarily focused out to 2020.¹⁰⁶

- f. Identification of Capability Mismatches: NZDF equivalent - Defence Capability Plan.
- g. Force Development Options: NZDF equivalent - Defence Capability Plan.

⁹⁷ New Zealand Ministry of Defence. “Capability Management Board Risk Management Policy” (paper presented by NZMOD, Wellington, March 12th, 2012), 1-9.

⁹⁸ New Zealand Defence Force. *New Zealand Defence Doctrine* (Wellington: New Zealand Government, 2012): 33-45, accessed March 15th, 2012, http://www.nzdf.mil.nz/downloads/pdf/public-docs/2012/nzddp_d_3rd_ed.pdf

⁹⁹ “Guide to Capability Based Planning,” 2.

¹⁰⁰ *Ibid.*

¹⁰¹ New Zealand Defence Force. *New Zealand Defence Doctrine*, chap. 4.

¹⁰² *Ibid.*

¹⁰³ “Guide to Capability Based Planning,” 7.

¹⁰⁴ *Ibid.* 4.

¹⁰⁵ New Zealand Ministry of Defence. *Defence Capability Plan* (Wellington: New Zealand Government, 2011), 1-40.

¹⁰⁶ *Ibid.* 27.

- h. Resource Constraints: NZ equivalent - Vote Defence.
- i. Balance of Investments: NZ equivalent - Defence Capability Development Plan.
- j. Affordable Capability Development Plan: Defence Capability Development Plan.

Stages (f.-j.) of the TTCP model represent the most important decision points of the entire CBP process. Consequently, as the TTCP emphasises, these phases require the active involvement of senior decision makers.¹⁰⁷ Furthermore, it is vital that this group has confidence in the accuracy of analysis undertaken at prior stages (a. –e.). This requires officials with holistic knowledge of defence structures, assets and capabilities as well as an understanding of individual CBP components.¹⁰⁸

In the New Zealand context, the Defence Capability Plan (DCP) has strong commonality with these stages of the TTCP template. The DCP process involves senior NZDF and MoD officials, identifies capability mismatches and examines the various Force Development Options that flow from this.¹⁰⁹ The resulting “Balance of Investments” recommendations are then considered within given fiscal boundaries.¹¹⁰ Of necessity, this process requires trade-off analysis, based on projected future incremental benefits and costs. This is an extremely difficult task given that projected capabilities are, by definition, distant and reliant upon accurate cost data across the capability life cycle. Similarly, benefits are difficult to assess as they are often intangible.

Internationally, some effort has been made to employ quantitative models to encapsulate these variables so as to generate objective conclusions.¹¹¹ However, it is notable that Davis provides a warning with regards to an over reliance upon mathematical equations. Specifically Davis states the purpose of Capability Based Planning “is not to turn decision making into something algorithmic, but rather to provide information about what is necessarily an exercise in investments dependent upon strategic judgement”.¹¹² Evidence as to the development of algorithmic defence planning models is scant in the New Zealand context, although it is believed the MoD has conducted some exploratory

¹⁰⁷“Guide to Capability Based Planning,” 7.

¹⁰⁸ *Ibid.*

¹⁰⁹ Zealand Ministry of Defence. *Defence Capability Plan*, 6.

¹¹⁰ *Ibid.*7.

¹¹¹ Davis. *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation*, xxiv.

¹¹² *Ibid.*

work in this respect.¹¹³ For example, the 2004 Defence Capability and Resourcing Review (DCARR) made mention of “Cost/Capability” curve analysis.¹¹⁴

Capability Management Board (CMB)

Practical application of a methodology as complex and multidimensional as Capability Based Planning, suggests the need for a supportive administrative structure. The risk of unsuccessful outcomes could rise when the constituents of a sequential methodology such as CBP exist in isolation. With this in mind, it is noteworthy that the TTCP acknowledges the importance of stakeholder involvement - “Stakeholders must be included to ensure that their requirements and concerns are considered. Key stakeholders will eventually control the CBP process and it is therefore important that they feel they have ownership of it.”¹¹⁵ This is an explicit recognition of the need for an entity to act as a ‘clearing house’ for stakeholder views and facilitate the involvement of interested parties in order to create a “unifying vision.”¹¹⁶

In the NZ context, the need for coherency of process was recognised with the formation of the Capability Management Board (CMB) in 2010.¹¹⁷ As *Vote Defence Force 2011* points out, the primary focus of the CMB is to act as a hinge between “policy objectives and military capabilities” and the “funding needed to acquire and maintain capabilities.”¹¹⁸ Particular importance is attached to “whole of life management” with the Chief of Defence Force and Secretary of Defence jointly responsible for both ongoing asset management and new acquisitions.¹¹⁹ Furthermore, the appointment of senior external appointees as independent members of the CMB, indicates the importance attached to both the Capability Management Framework as well as the diversity of elements that contribute to it.¹²⁰

The formation of the CMB is strongly aligned with TTCP defence planning methodology.

¹¹³ New Zealand Ministry of Defence, “Capability Management Board Risk Management Policy,” 3.

¹¹⁴ “Defence Capability and Resourcing Review,” New Zealand Ministry of Defence, accessed March 20th, 2013, <http://www.defence.govt.nz/reports-publications/dcarr/dcarr-tor.html>

¹¹⁵ “Guide to Capability Based Planning,” 6.

¹¹⁶ *Ibid.*

¹¹⁷ New Zealand Ministry of Defence. *Vote Defence Force 2011* (Wellington, New Zealand Government, 2011), 28, accessed March 19th, 2013, <http://www.treasury.govt.nz/budget/2011/ise/v4/ise11-v4-pia-defen.pdf>

¹¹⁸ *Ibid.*

¹¹⁹ “Briefing For The Incoming Minister of Defence,” New Zealand Ministry of Defence, accessed March 18th, 2013, <http://www.defence.govt.nz/pdfs/reports-publications/election-brief-2011-backgroud-information.pdf>

¹²⁰ “Independent Advisors,” New Zealand Ministry of Defence, accessed March 18th, 2013, <http://www.defence.govt.nz/pdfs/indepdent-advisers-defence-capability-board.pdf>

General Observations – Capability Based Planning in New Zealand

This analysis of the TTCP’s Capability Based Planning template and the application of CBP in the NZ context, presents several observations:

1. **Existing structures.** Most, if not all, elements of the TTCP’s CBP process are to be found within existing defence planning processes in this country. The Ministry of Defence and NZDF have a highly developed capability based planning process that matches most aspects of the theoretical model advocated by the TTCP.
2. **Affordable excellence.** New Zealand and the TTCP share the same final output goal of an “Affordable Capability Development Plan.”¹²¹ Also in common with the TTCP, New Zealand places particular importance on ensuring consistency between strategic policy and defence capabilities and the implementation of these capabilities within a given fiscal context.¹²²
3. **Real world tasks.** Scenario analysis is pivotal to both New Zealand and TTCP processes and the subsequent identification of capability gaps.¹²³ Most importantly, the TTCP advocates the use of “specific,” realistic scenarios that “test a given force structure” to generate actual resourcing requirements and actual costs.¹²⁴ The use of scenario analysis in New Zealand appears well embedded as evidenced by the use of “Employment Contexts” and “Joint Mission Essential Tasks.”¹²⁵
4. **Prioritisation.** Inevitably, Capability Based Planning requires trade-off decisions.¹²⁶ This suggests that an explicit capability prioritisation methodology, such as cost/benefit or a similar decision making tool, would be useful.¹²⁷ Although defence decision making will always involve subjectivity, due to the need for human decision making, the intangibility of benefits means quality decisions require as much objectivity as possible. Despite this, Davis issues an explicit warning as to the shortcomings of quantitatively based trade-off

¹²¹“Guide to Capability Based Planning,” 4.

¹²² New Zealand Ministry of Defence. *Defence Capability Plan*, 1-40.

¹²³ *Ibid.*

¹²⁴ “Guide to Capability Based Planning,” 9.

¹²⁵ New Zealand Ministry of Defence, “Reporting Timeline for CMB.”

¹²⁶ “Guide to Capability Based Planning,” 12.

¹²⁷ Davis. *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation*, xxiv.

models.¹²⁸ This observation has relevance in New Zealand given that tentative steps have been taken towards employing quantitative modelling.¹²⁹

5. **Alternative thinking.** Capability Based Planning seeks to identify alternative ways to solve problems.¹³⁰ This occurs on two levels: firstly, alternative operational solutions to a given scenario;¹³¹ secondly, alternative solutions concerning asset acquisitions.¹³² Group thinking is a very real risk to the efficacy of the CBP process. Therefore, structures that foster agility of thinking need to be encouraged, particularly given the asymmetrical nature of many security threats.¹³³ The “whole of government” approach of the Defence White Paper 2010 seems consistent with this.¹³⁴ However, independent input and other mechanisms to capture a range of opinions may be worthy of consideration.
6. **Technology.** Defence is a high technology environment.¹³⁵ This fact, coupled with the rapidly increasing pace of technological development, suggests that technological advice (e.g. NZ Defence Technology Agency) should have a defined role in any CBP process. New Zealand’s CBP process does not appear to allow the systematic consideration of future technological opportunities and threats.
7. **Diversity of risks.** The very long term nature of defence assets, suggests the importance of matching asset lives with geopolitical trend analysis of a similar period. This is obviously a difficult task. However, decision makers do not have the luxury of inaction. Once again, a multi agency approach appears to be warranted given the diversity of security risks likely to emerge over the very long term. As strategic issues are diverse, externally sourced analysis may prove useful as it cannot be assumed that the necessary skills and knowledge will reside within the MoD and/or NZDF alone.
8. **Cohesion.** Capability Based Planning is not merely a concept but an actual process involving extremely disparate elements.¹³⁶ It is crucial that its various elements do not exist in isolation, but rather as parts of a coherent process

¹²⁸ *Ibid.*

¹²⁹ “Defence Capability and Resourcing Review.”

¹³⁰ “Guide to Capability Based Planning,” 9.

¹³¹ *Ibid.*

¹³² *Ibid.*

¹³³ Price Waterhouse Coopers (PWC), *Agile Defence* (London, PWC, 2011), 6.

¹³⁴ New Zealand Ministry of Defence. *Defence White Paper 2010*.

¹³⁵ Price Waterhouse Coopers (PWC), *Agile Defence*, 7.

¹³⁶ “Guide to Capability Based Planning,” 4.

overseen by senior officials. This is a key focus for the CMB and one well matched with the intent of the TTCP model.¹³⁷

9. **Accuracy.** As the TTCP notes, to be successful, CBP relies on the inputs of a very wide group.¹³⁸ Ensuring the accuracy and quality of these contributions is vital to the achievement of portfolio optimisation. Existing audit functions are a significant contributor to the efficiency of CBP in that they provide a performance monitoring function. This is an important focus for the New Zealand Ministry of Defence Evaluation Division.¹³⁹
10. **Leadership.** The diverse elements that comprise Capability Based Planning suggest that quality leadership, from senior military and civilian officials, is a pre-requisite for success.¹⁴⁰ Only this group has the knowledge, credentials and experience required to make CBP work well. It is essential that key stakeholders are engaged.¹⁴¹
11. **External Advice/Critique.** Given the security sensitive nature of the defence sector, the involvement of “externals” will always be problematic. However, internal peer review, retired senior officers, experts from partner militaries and use of external professional parties with appropriate security clearance, may be worthy of further development. For example, the CMB utilises external board members.¹⁴²

Conclusion

This Chapter has sought to outline the practical application of the TTCP’s Capability Based Planning model in New Zealand. Consequently, particular effort has been made to examine the extent to which Capability Based Planning is actually used in this country and then contrast this with the TTCP model. It has been found that CBP is a well understood and accepted defence planning methodology in New Zealand and, in practical terms, this process is relatively well aligned with the TTCP model.

Whilst most, if not all, stages of the TTCP template are undertaken in New Zealand, it is difficult to say if these diverse elements are regarded as conscious parts of the CBP process or rather as legacy documents or processes of one sort or another. It may be that many existing reports, analyses and

¹³⁷ *Ibid.* 7.

¹³⁸ *Ibid.*

¹³⁹ “Evaluation Division,” New Zealand Ministry of Defence, accessed March 20th, 2013, <http://www.defence.govt.nz/about-us/divisions.html>

¹⁴⁰ “Guide to Capability Based Planning,” 6.

¹⁴¹ *Ibid.*

¹⁴² “Independent Advisors.”

documents serve multiple purposes, of which one just happens to be an element of CBP. It probably doesn't matter as long as the work is being done and subsequently incorporated into a cohesive capability based planning model. For example, reviews regarding the acquisition of military capabilities are regularly conducted by external entities such as the New Zealand Auditor General.¹⁴³ Despite this, in some areas New Zealand's approach to CBP differs significantly to that of TTCP.

Firstly, the TTCP strongly favours the involvement of defence technology experts as a way to alert senior officials to emerging technological themes - opportunities as much as threats.¹⁴⁴ A clearly defined role for defence technologists appears largely absent from the Capability Management Framework in New Zealand.

Secondly, whilst the use of scenario analysis is well established in New Zealand, a number of practical implementation issues appear relevant. For example, it seems sensible to generate scenarios with reference to the annual Environmental Scan rather than wait for a Defence White Paper. Scenario analysis need not be an annual process given the extent of the work involved. However, aligning scenarios with contemporary strategic themes would enhance agility and adaptability. Furthermore, it may be worthwhile ensuring that the entity responsible for selecting scenarios is independent of both the NZDF and MoD. The Foreign Affairs, Defence and Trade Select committee could provide some input in this respect.¹⁴⁵

Thirdly, the TTCP methodology strongly encourages alternative thinking amongst military professionals as a way to generate improved outcomes. Therefore, any mechanism that encourages alternative acquisition or operational ideas from within the NZDF has great attraction. At least publicly, the consideration of alternatives seems absent in New Zealand. At the very least it may be useful to encourage the NZDF to provide more than one way to deal with a scenario as a way to stimulate debate as to the most productive, efficient response. Alternatively, an external assessment as to the efficacy of the NZDF's recommended operational responses may be worthy of consideration.

A fourth and perhaps more intractable issue concerning the application of the TTCP model in New Zealand is the extent to which the methodology is able to cope with a downsizing military. With this in mind, it is worthwhile recalling that CBP has, for the most part, been used by militaries that are

¹⁴³ "Overview by the Auditor General," New Zealand Auditor General, accessed June 10th, 2013.

<http://www.oag.govt.nz/2001/lav-lov>

¹⁴⁴ "Guide to Capability Based Planning," 4.

¹⁴⁵ Foreign Affairs, Defence and Trade Select committee consists of elected parliamentary members and is responsible for matters relating to the defence of New Zealand.

building not reducing capability.¹⁴⁶ That the NZDF appears to be in a continual state of downsizing may bring into question the utility of CBP.¹⁴⁷ As Greener suggests, fiscal and political pressures can be overwhelming and have led to a pattern of inconsistent and distorted capability outcomes.¹⁴⁸ This is also a challenge facing other TTCP members. A related question arises as to the usefulness of CBP when considering whether or not to remove a capability before the end of an assets planned 'economic life'. These two questions are highly relevant to the NZDF, given the long life of military assets such as the Navy's ANZAC frigates. Nevertheless, as partner states, such as the UK, are facing similar issues, their methodological approaches will be of great interest.¹⁴⁹

Finally, it is unclear as to whether the remit of the Capability Management Board extends to holistic oversight of all relevant aspects of the CBP process (b-j). These are wide ranging and require an understanding of internal reporting lines and administrative structures. CBP is a multifaceted task and the TTCP makes it quite clear they support the creation of a body charged with the oversight of as many parts as feasible.¹⁵⁰ On the basis that complexity is best dealt with by sharply defined administrative structures, successful CBP requires centralised co-ordination. Consequently, it seems that the formation of the Capability Management Board is a sensible precursor to improving the functionality of the Capability Based Planning process and the Capability Management Framework as a whole. Prior to the formation of the CMB, the lack of a single body to oversee the disparate threads of CBP was a glaring departure from the TTCP's defence planning template. The creation of the CMB is a clear recognition that defence planning in New Zealand requires a high degree of co-ordination between the MoD and NZDF but also suggests that established structures were underperforming.

The importance of administrative oversight suggests that other states will have also confronted this question. Consequently, how other countries approach both this problem and other difficulties associated with defence planning, should be of great interest to defence planners in this country. With this in mind, the next stage of this thesis will catalogue how other TTCP member states approach defence planning and how they seek to achieve optimality within a given budgetary constraint. This group has been chosen on the basis that each state is a member of the TTCP group. As a result, all have been a party to TTCP Panel Three discussions on Capability Based Planning. However, as the TTCP itself highlights, it is unrealistic to presuppose that a single defence planning

¹⁴⁶ "The Technology Co-operation Program (TTCP) Maritime (MAR)."

¹⁴⁷ "New Zealand Armed Forces Chief Admits Shock of Reforms," *GMW*, accessed March 20th, 2013, http://en.gmw.cn/2013-01/30/content_6565133.htm

¹⁴⁸ Greener, *Timing Is Everything The Politics and Processes of New Zealand Defence Acquisition Decision Making*. 151-157.

¹⁴⁹ Kirkpatrick, D, "The Next UK Defence Review Must Do Better," *RUSI*. Autumn/Winter (2011):1-5.

¹⁵⁰ "Guide to Capability Based Planning," 6.

paradigm could meet the needs of such a diverse group of states.¹⁵¹ Local nuances are inevitable and it is hoped that by identifying these, the knowledge and usefulness of CBP in this country will be extended.

However, there is another reason for selecting these countries as the analysis group. Each has gone to great lengths to develop new defence planning methodologies following the end of the Cold War, a challenge common to New Zealand.¹⁵² With the demise of the Soviet bloc, the old certainties that came with a single monolithic enemy came to an end. During the Cold War, Western defence planning placed supreme importance on confronting the global military aspirations of a single party.¹⁵³ However, the unsuitability of this threat based framework in a new era became increasingly apparent in the last decades of the 20th Century. Rapid technological advance, asymmetric warfare, organised crime and failed states mean sovereign nations now face a threat environment of immense complexity and diversity.¹⁵⁴ Concurrently, the Westphalian concept of inter-state warfare, although still relevant, has become a less dominant theme.¹⁵⁵ Recognition of the need for an alternative defence planning methodology has emerged over the past decade, as neatly encapsulated in two quotes from the 2008 UK National Security Strategy document:

“The Cold War threat has been replaced by a diverse but interconnected set of threats and risks ... including terrorism, WMD, internal conflicts, failed states, pandemics and organised crime.”

“The scope and approach of our strategy reflects the way our understanding of national security has changed. In the past, the state was the traditional focus of foreign defence and security policies.”

United Kingdom Government, NSS, 2008.¹⁵⁶

These words apply as much to New Zealand as the UK. Nevertheless, this is not to say that more conventional threats have disappeared from the strategic landscape. Rather, a whole new set of issues now competes for the national security dollar and political attention. This challenge has been made all the more difficult by the fact it coincides with a time of immense fiscal pressure and the remnants of a global economic malaise.¹⁵⁷ As a result, governments must carefully prioritise spending. In this environment the practical application of CBP in New Zealand, as well as elsewhere, is likely to experience significant and, in all likelihood, unforeseen pressures.

¹⁵¹ *Ibid.* 8.

¹⁵² Caudle, “Homeland Security Capabilities-Based Planning: Lessons from the Defense Community,” 4.

¹⁵³ *Ibid.*

¹⁵⁴ Price Waterhouse Coopers (PWC), *Agile Defence*, 1-29.

¹⁵⁵ *Ibid.*

¹⁵⁶ United Kingdom Ministry of Defence. *National Security Strategy (NSS)* (London: United Kingdom Government, 2008), 1.3-4.

¹⁵⁷ *Ibid.*

Chapter 6: Defence Planning in TTCP member states - Australia

Defence planning in Australia: some context

Defence White Papers are the most obvious manifestation of defence planning in Australia and regarded as Australia's pivotal defence planning document.¹⁵⁸ Providing the foundation of capability based planning for the subsequent 20 years, the 2009 version was the first since 2000¹⁵⁹ whilst the 2013 White Paper was only the sixth since the Vietnam War.¹⁶⁰ Although White Papers are relatively infrequent, lesser defence reviews were completed in 2003, 2005 and 2007.¹⁶¹ A key aspect of any Defence White Paper is the provision of an up-to-date strategic plan, as well as a review of the force structures and capital investments needed to support this.¹⁶² The objective is to make fully informed and cost effective decisions.¹⁶³ With this in mind, the 2009 White Paper was followed by a Defence Capability Plan (DCP) which provided a 10 year investment plan outlining the structure and timing of Australian Defence Force capability developments.¹⁶⁴ Although the White Paper is the most important planning document, the actual process tends to act as the catalyst for a number of Companion Reviews.¹⁶⁵ These are broad in scope and range from cost/efficiency reviews through to the analysis of process and structure.¹⁶⁶ In the case of the 2008 Mortimer review of procurement processes, this also involved external parties.¹⁶⁷ The use of external expertise is also a feature of the Australian Defence White Paper 2009 which is examined below.¹⁶⁸

¹⁵⁸ Australian Department of Defence. *Defence White Paper – Public Discussion Paper* (Canberra: Australian Government, 2008), 2, accessed March 20th, 2013, <http://www.defence.gov.au/discusspaper.html.htm>

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.*

¹⁶¹ "Defence White Papers"

¹⁶² Australian Department of Defence, *Defence White Paper – Public Discussion Paper*, 3.

¹⁶³ *Ibid.*

¹⁶⁴ Australian Department of Defence. *Defence Capability Plan 2009* (Canberra: Australian Government, 2009), 1-217, accessed March 20th, 2013, http://www.defence.gov.au/publications/DCP_2009.pdf

¹⁶⁵ "Defence White Papers."

¹⁶⁶ *Ibid.*

¹⁶⁷ Australian Department of Defence. *Defence Procurement and Sustainment Review 2008 - Mortimer Review* (Canberra: Australian Government, 2008), 1-68, accessed March 20th, 2013,

<http://www.defence.gov.au/publications/mortimerReview.pdf>

¹⁶⁸ It should be noted that in subsequent chapters, the TTCP model will be presented in point form.

2009 Defence White Paper: Methodological Approach

- **Government Guidance**

The primary purpose of the 2009 Australian Defence White Paper is described as the development “of a comprehensive picture across a range of Defence issues.”¹⁶⁹ The methodology employed thus represents a very subtle deviation from the state-centricity of previous Australian White Papers which appear to focus on major platform acquisition(s) and the absolute prioritisation of defending Australia from armed (state-based) attack.¹⁷⁰ As a result, the 2009 White Paper employs the ‘whole of government’ approach, familiar to both US and UK strategic analysis.¹⁷¹ As part of this, Australian defence planners, in partnership with other relevant government agencies, conducted a ‘top down’ forward looking, “strategic assessment” in 2008.¹⁷² This work provides the underlying framework for subsequent analysis and identified a multitude of strategic themes, albeit that many seem to reflect current Australian Defence Force (ADF) deployments.¹⁷³ Despite this, the initial organising principle of the 2009 Australian Defence White Paper is strongly matched with the first steps of the TTCP’s Capability Based Planning template, whereby strategic analysis provides an essential initial reference point.¹⁷⁴

- **Defence Priorities**

Australian defence priorities are outlined in Chapter Seven of the 2009 White Paper, entitled “Principal Tasks for the ADF” and formulated with direct reference to the multi agency strategic assessment.¹⁷⁵ One of the most important strategic themes contained within the 2008 strategic assessment, the rapidly changing strategic landscape in Asia, presents itself clearly in the list of Australian defence priorities.¹⁷⁶ This suggests that the methodological approach of the 2009 Defence White Paper is consistent with both the TTCP CBP template and the multi agency strategic review. The 2009 Defence White Paper also states its main defence priority starkly:

“The principal task of the ADF is to deter and defeat armed attacks on Australia by conducting military operations without relying on the combat or combat support forces of other countries. This means the ADF has to be able to control our air and sea approaches

¹⁶⁹ Australian Department of Defence, *Defence White Paper – Public Discussion Paper*, 2.

¹⁷⁰ *Ibid.* 1.

¹⁷¹ *Ibid.*

¹⁷² *Ibid.* 3.

¹⁷³ *Ibid.*

¹⁷⁴ Australian Department of Defence. *Defence White Paper 2009 (Canberra: Australian Government, 2009)*, 30-39.

¹⁷⁵ *Ibid.* 53.

¹⁷⁶ *Ibid.* 55.

*against credible adversaries in the defence of Australia, to the extent required to safeguard our territory, critical sea lanes, population and infrastructure.”*¹⁷⁷

Australian Defence White Paper, 2009.

This is a very strong statement in favour of sovereign integrity and the importance of the vital geographical zones such as the northern sea gap. Consequently, although the strategic assessment employs a wider lens, including reference to non state threats, state-centricity resonates loudly in the 2009 Australian Defence White Paper.

Additional defence priorities broaden the focus to include the ability to contribute to stability and security in the South Pacific and East Timor and contribute to military contingencies in the Asia/Pacific region and the rest of the world.¹⁷⁸ However, the strength of the commitment to the defence of the northern sea gap does seem to marginalise some of the other issues identified in the 2008 strategic assessment. This suggests a slight disconnect between strategic analysis and defence priorities. Nevertheless, the statement of Defence Priorities aligns closely with the TTCP CBP model given the explicit link with the Australian Governments strategic assessment.

- **Scenario Analysis**

Given numerous references in ADF and Department of Defence documents to scenario analysis, the technique appears firmly established in Australia.¹⁷⁹¹⁸⁰ For example, in a 2009 research paper on computational approaches to CBP, the Australian Defence, Science and Technology Organisation (DSTO) states clearly that Australian defence capability planning is “based on scenarios.”¹⁸¹ Furthermore, the DSTO has completed academic studies to establish the utility of algorithms in capability based planning and scenario analysis.¹⁸² However, in a public sense, it is unknown how far numerically based scenario methodologies have become standard practise in Australia.

The use of scenario analysis, computational or not, is an important element in the TTCP’s CBP model.¹⁸³ However, the sequential nature of the TTCP template means that achieving consistency between strategic assessments, defence priorities and chosen scenarios is also essential.¹⁸⁴ With this in mind, the importance of South East Asia to the security of Australia and the rapidly

¹⁷⁷ *Ibid.* 53.

¹⁷⁸ *Ibid.* 54-57.

¹⁷⁹ Abbass, H.A et al. “Computational Scenario-based Capability Planning” (paper presented by Defence, Science and Technology Organisation, July 3rd, 2009).

¹⁸⁰ Caudle, S., “Homeland Security Capabilities-Based Planning: Lessons from the Defense Community”: 11

¹⁸¹ Abbass, H.A et al. “Computational Scenario-based Capability Planning.”

¹⁸² *Ibid.*

¹⁸³ “Guide to Capability Based Planning,” 7.

¹⁸⁴ *Ibid.* 4.

changing strategic environment in the region are perhaps the most important strategic findings of the 2009 Defence White Paper.¹⁸⁵ This is a perception backed by former Defence Minister Kim Beazley when he states the importance of defending Australia's north amid the "unprecedented simultaneous rise of a multiplicity of major states."¹⁸⁶

Whilst detailed scenarios involving these issues are not available publically, Beazley suggests that war gaming scenarios are likely to include grand strategy assessments of the USA's future strategic position, the future role of the Australian-American alliance, and a clear statement of Australia's overriding goals in its immediate region.¹⁸⁷ These macro themes are consistent with the Defence White Paper's strategic assessment and particularly the importance attached to defending Australian sovereignty.

Scenario planning is central to defence capability planning in Australia.

- **Capability Goals**

The TTCP describes Capability Goals as the "capabilities needed to achieve stated objectives."¹⁸⁸ As a consequence, Capability Goals are set with reference to both Defence Priorities and Scenario Analysis.¹⁸⁹ In Chapter 10 of the 2009 Australian Defence White Paper, 17 Capability Goals are outlined.¹⁹⁰ Of these, four could be described as indicative of high end, state-centric capabilities.¹⁹¹ The remainder could be grouped together as stabilisation and/or a mix of military/civil goals.¹⁹² Although the priority still appears tilted towards high end capabilities, desired capabilities nonetheless represent a relatively good match with the defence priorities outlined in Chapter Seven of the Defence White Paper.¹⁹³ Consequently, this process is well aligned with the intent of this stage of the TTCP's CBP template.

The TTCP's CBP model also stresses the important inter-relationship between Operational Concepts, the effectiveness of Capability Partitions and Future Environment, when considering the ability of a defence force to meet required capability outputs.¹⁹⁴ With this in mind, the ADF

¹⁸⁵ Australian Department of Defence, *Defence White Paper 2009*, 11.

¹⁸⁶ Beazley, K., "In defence of sound military planning," *Sydney Morning Herald*, 3rd May 2009, accessed March 21st, 2013, <http://smh.com.au/opinion/in-defence-of-sound-military-planning-20090503>

¹⁸⁷ *Ibid.*

¹⁸⁸ "Guide to Capability Based Planning," 9.

¹⁸⁹ *Ibid.* 4.

¹⁹⁰ Australian Department of Defence, *Defence White Paper 2009*, 88-89.

¹⁹¹ *Ibid.*

¹⁹² *Ibid.*

¹⁹³ *Ibid.* 53.

¹⁹⁴ "Guide to Capability Based Planning," 4.

acronym “FIC”, or Fundamental Inputs to Capability, describes the importance of a suite of inputs vital to effective capability delivery.¹⁹⁵ “FIC” includes obvious aspects such as trained personnel, as well as less obvious elements such as facilities (the parallel acronym within the NZDF is PRICIE).¹⁹⁶ These concepts are not specifically covered within the 2009 Defence White Paper. However, “FIC” is embedded into ADF operational manuals.¹⁹⁷

The Australian Defence Science and Technology Organisation is also an active participant in this stage of Capability Based Planning in Australia.¹⁹⁸ Most importantly, the DSTO’s Capability Development Group (CDG) is charged with providing “specific advice” throughout the “capability cycle” including “technological feasibility, maturity and overall technical risk associated with the project.”¹⁹⁹ This requires “a structured examination of the assumptions subject matter experts make in the identification process of capability gaps” and the impact of emerging technological themes – opportunities and threats – that are likely to impact Capability Goals in the future.²⁰⁰ This focus is strongly aligned with the TTCP model to the extent that future trends are expected to impact desired capabilities.

- **Capability Assessment**
- **Identification of Capability Mismatches**
- **Force Development Options**
- **Balance of Investment/Defence Priorities/Resource Constraints**

Chapter Nine of the 2009 Defence White Paper, entitled “Capability Priorities for Force 2030,” follows a logical progression that first outlines current/planned ADF capabilities and then measures these against stated Capability Goals.²⁰¹ Resulting capability mismatches, or capability gaps, then provide the basis for a statement of required investments.²⁰² These are presented in a

¹⁹⁵ Australian Department of Defence. *Defence Capability Development Manual* (Canberra: Australian Government 2006), accessed March 28th, 2013,

http://www.defence.gov.au/capability/MajorProjects/_pubs/dcdm.pdf

¹⁹⁶ *Ibid.*

¹⁹⁷ *Ibid.*

¹⁹⁸ “Capability Development Group,” Australian Department of Defence, accessed March 17th, 2013

<http://www.defence.gov.au/capability/DSTO/Information.asp>

¹⁹⁹ *Ibid.*

²⁰⁰ *Ibid.*

²⁰¹ Australian Department of Defence, *Defence White Paper 2009*, 70-86.

²⁰² *Ibid.*

final concept known as “Force 2030” which represents the desired shape of the ADF in 20 years time.²⁰³ A series of “Capability Priorities” are then presented across the three service arms.²⁰⁴

The high level analysis contained within the Defence White Paper provides the input needed for subsequent capability decision making stages. The set of Capability Priorities identified in the White Paper are therefore an integral part of subsequent documents such as the Defence Capability Plan (DCP), which outlines the execution of capability decisions on a more detailed level than the Defence White Paper and the Defence Capability Guide (DCG), issued by the Defence Materiel Organisation (DMO).²⁰⁵ As the Australian Department of Defence points out, the DCP and DCG “provide a 10 year program for defence acquisition” to be overseen by the DMO.²⁰⁶

These process steps are also well-matched with the sequential steps of the TTCP template. However, in a slight departure from the TTCP template, the DSTO again has a central role in capability assessment, the identification of mismatches as well as the formulation of force development options. In this way the DSTO lies at the very core of defence planning in Australia. The DSTO itself states that, “following formal recognition of the existence of a capability gap, by its entry in the DCP, the next step is to identify options to address that gap. DSTO has expertise in many areas of military systems and related technologies, and will be able to bring this expertise to bear in suggesting options for consideration” including “individual business cases.”²⁰⁷

Although the timing and extent of DSTO involvement in Australian defence planning differs slightly to the TTCP’s CBP model, the overall 2009 Defence White paper shows a strong degree of commonality with the TTCP. Nevertheless, other methodological inconsistencies exist. Most notably, the concept of “Force 2030,” presented in the form of a Capability Development Plan (CDP), advocates a series of investments heavily oriented towards high intensity inter-state warfare.²⁰⁸ This is inconsistent with the White Paper’s Strategic Outlook stating that the prospect of a major war was “remote.”²⁰⁹ Furthermore, the majority of Australia’s Defence Priorities stress the enduring prevalence of non-state and intra-state conflict.²¹⁰ This disconnect is also apparent in the 2008 Public Discussion document that preceded the 2009 White Paper. This

²⁰³ *Ibid.*

²⁰⁴ *Ibid.*

²⁰⁵ “2009 Defence Capability Plan,” Defence Materiel Organisation, accessed March 22nd, 2013, <http://www.defence.gov.au/dmo/id/dcp/dcp.cfm>

²⁰⁶ *Ibid.*

²⁰⁷ “Capability Development Group.”

²⁰⁸ Australian Department of Defence, *Defence White Paper 2009*, 70-86.

²⁰⁹ *Ibid.* 21.

²¹⁰ *Ibid.* 53.

paper also includes reference to the importance of Australian sovereignty, however only as one of eight essential defence “tasks.”²¹¹ This is important as the Defence White Paper makes it clear that the Force Development Plan (“Force 2030”) required tradeoffs.²¹² “Force 2030” therefore appears philosophically tilted in favour of a maritime strategy with high end capabilities and not stabilisation type operations associated with “intra-state conflict.”²¹³ This later group was clearly identified by Chapter Four (entitled: Australia’s Strategic Outlook) of the 2009 White Paper as the most likely type of operation that the Australian Defence Force would be involved in over the next 20 years. This is a point also stressed by Australian National University (ANU) academic Hugh White.^{214 215} In this regard the 2009 Defence White Paper is methodologically inconsistent with both the TTCP CBP template as well as the strategic assessment contained within the document itself.

- **Affordable Capability Development Plan**

The TTCP model seeks to establish a capability development plan that is both affordable as well as consistent with preceding analysis. Outlining A\$20bn in savings, affordability is a strong theme in the 2009 Defence White Paper.²¹⁶ The document also provides the basis for the explicit five year financial plan contained in the Defence Capability Plan (DCP) that matches desired defence capabilities with funding.²¹⁷ This is the first time an Australian Defence White paper has provided funding certainty.²¹⁸ It is also notable that funding commitments are further underpinned by a guarantee that funding will be indexed.²¹⁹ Alignment with the final stage of the TTCP template is therefore strong. Finally, as noted previously, the Defence Materiel Organisation (DMO) is responsible for the practical execution of the DCP.²²⁰ The contribution of the DMO in this regard is covered in the section below that describes governance structures in the Australian defence sector.

²¹¹ Australian Department of Defence, *Defence White Paper – Public Discussion Paper*, 13.

²¹² Australian Department of Defence, *Defence White Paper 2009*, 58.

²¹³ *Ibid.* 22.

²¹⁴ *Ibid.*

²¹⁵ White, H., “Muddled Report Leaves Gaps in our Defence,” *The Australian*, May 4th, 2009, accessed March 23rd, 2013, <http://www.theaustralian.co.au/news/muddled-report-leaves-gaps-in-our-defence>

²¹⁶ Australian Department of Defence, *Defence White Paper 2009*, 14.

²¹⁷ “2009 Defence Capability Plan,” 1.

²¹⁸ *Ibid.*

²¹⁹ Australian Department of Defence, *Defence White Paper 2009*, 137.

²²⁰ Australian Department of Defence, *2009 Defence Capability Plan*, iii.

Australian Defence Planning Governance Structures

The 2009 Defence White Paper introduced a number of new governance structures in an attempt to provide the Australian Government with the mechanisms required to “ensure a tighter alignment between strategic guidance, capability decisions and resource allocation.”²²¹ A number of these are outlined below:

- **Australian defence planning system**²²²

The 2009 Defence White Paper makes a noticeable effort to outline a disciplined five year planning cycle consisting of a Defence Planning Guidance (DPG) report in years one, two and three to be followed by a strategic assessment, force structure review and independent audit in the fourth year.²²³ A Defence White Paper is to follow in year five.²²⁴ The DPG could be regarded as a Defence ‘Light Paper’ to the extent it is not publically available and, as a Cabinet document, does not permit public submissions.²²⁵ However, the DPG report covers the essential elements of a normal Defence White Paper, such as an annual National Security Statement (NSS), force structure review, capability development, risk management and other critical enablers.²²⁶ Year four tasks are also worthy of comment in that they provide the foundation work for the Defence White Paper in year five: a formal strategic risk assessment involving public submissions and a review of all major capability projects.²²⁷ The Defence White Paper remains the foremost defence planning document in Australia. However, the planning cycle described above reflects the Commonwealth Government’s perception that more regular defence reviews are needed, given the fluid strategic environment.²²⁸

- **Defence Strategic Reform Advisory Board (DAB)**²²⁹

The 2009 Defence White Paper announced the establishment of the DAB. Chaired by a private sector appointee and comprising both internal and external members, the board seeks to ensure defence reforms are implemented as intended.

²²¹ Australian Department of Defence, *Defence White Paper 2009*, 109.

²²² *Ibid.*

²²³ *Ibid.*

²²⁴ *Ibid.*

²²⁵ *Ibid.*

²²⁶ *Ibid.*

²²⁷ *Ibid.*

²²⁸ *Ibid.* 110.

²²⁹ *Ibid.* 112.

- **Ministerial Advisory Panel (MAP)** ²³⁰

The MAP is appointed by the Australian Minister of Defence to provide expert independent advice on key strategic issues and acted in an advisory capacity to support the 2009 White Paper. Appointees to the panel included both senior academics and senior retired military officers.

- **Defence Science & Technology Organisation (DSTO) Advisory Board** ²³¹

The DSTO was the subject of a major review conducted as part of the 2009 White Paper. ²³² As a result, a number of enhanced governance structures were introduced. The most notable of these is the DSTO Advisory Board. ²³³ The Advisory Board comprises external scientists, industry appointees, the Chief Scientist of Australia and academics and is charged with ensuring the DSTO supports the identification, introduction and use of new defence technologies. ²³⁴

The 2009 review of the DSTO led to a series of recommended governance structures:

- In-depth involvement with capability life cycle: The DSTO is now closely integrated into the capability life cycle extending from conception right through the entire life cycle of a capability or platform. ²³⁵ Advice includes; evaluation of projects and technical risk, risk mitigation, post-commissioning issues such as safety, ongoing capability assessment, availability and ensuring that the cost of ownership meets defence requirements. ²³⁶
- Interdepartmental expertise: The DSTO now works with non-defence agencies to address technological challenges as they apply to national security e.g. cyber security. ²³⁷
- Future technologies: The DSTO retains a foremost focus on future technologies. However, this brief now extends to both military and commercial technologies ²³⁸ and their impact on capability. Importantly, the DSTO monitors commercial technologies for the potential to be “strategically disruptive.” ²³⁸
- Support for deployed forces: DSTO personnel are now attached to deployed ADF units as a way to increase the speed and agility with which new capabilities can be introduced. ²³⁹
- Key enablers: The DSTO brief extends to “key enablers” such as networked systems. ²⁴⁰

²³⁰ “Defence White Paper,” Australian Government, accessed March 12th, 2013, <http://www.defence.gov.au/whitepaper/>

²³¹ Australian Department of Defence, *Defence White Paper 2009*, Chap. 17.

²³² *Ibid.* 132.

²³³ *Ibid.* 134.

²³⁴ *Ibid.*

²³⁵ *Ibid.* 133

²³⁶ *Ibid.*

²³⁷ *Ibid.* 134

²³⁸ *Ibid.*

²³⁹ *Ibid.* 133.

²⁴⁰ *Ibid.* 134.

- **Defence Capability Plan (DCP)** ²⁴¹

The most recent DCP was completed in 2012 and reflects the higher level guidance work completed in the 2009 Defence White Paper embodied in the concept “Force 2030.” ²⁴² The DCP is produced by the Australian Defence Materiel Organisation and the 2012 DCP includes “111 projects, or phases of projects,” that reflect key capability priorities identified in “Force 2030.” ²⁴³ The DSTO is also intensely involved with the DCP and uses what it calls a two pass system whereby once a capability gap is identified, a new capability solution must be assessed against alternatives. ²⁴⁴ All options are subject to intensive cost/benefit analysis, part of which involves calculating a Project Maturity Score. ²⁴⁵

If an optimal capability is identified and this is judged to have been sufficiently “de-risked,” a second pass process is embarked upon which results in a “budget allocation.” ²⁴⁶ The “Two Pass” system was recommended by the 2008 Mortimer Review. ²⁴⁷

- **Capability Development Group (CDG)**

“The Capability Development Group is responsible for developing capability proposals that are consistent with strategic priorities, funding guidance, legislation and policy, for consideration and approval by Government.” ²⁴⁸ The CDG is responsible for major capital equipment purchases and is headed by the Chief of Capability Development with support from the Vice Chief of the ADF, the Chief Financial Officer of the ADF and the Chief Defence Scientist. ²⁴⁹ The CDG reports to the Chief of Defence Force and the Secretary, Department of Defence. ²⁵⁰ The CDG also works closely with the DMO and has a very wide focus, including Fundamental Inputs to Capability (“FIC”) and how each “FIC” component contributes to capability. ²⁵¹

²⁴¹ Australian Department of Defence, *2012 Defence Capability Plan* (Canberra: Australian Government 2012), <http://www.defence.gov.au/publications/CapabilityPlan2012.pdf>

²⁴² *Ibid.* i.

²⁴³ *Ibid.*

²⁴⁴ “Capability Development Group,” Australian Department of Defence, accessed March 20th, 2013, http://www.defence.gov.au/Capability/_home/Default.asp

²⁴⁵ Australian Department of Defence, *2012 Defence Capability Plan*, 2-3.

²⁴⁶ *Ibid.*

²⁴⁷ Australian Department of Defence, *Defence Procurement and Sustainment Review 2008 - Mortimer Review*, 14.

²⁴⁸ “Capability Development Group.”

²⁴⁹ *Ibid.*

²⁵⁰ *Ibid.*

²⁵¹ Australian Department of Defence, *Defence Capability Development Handbook* (Canberra: Australian Government 2012), 2, accessed March 21st, 2013, <http://www.defence.gov.au/publications/DefenceCapabilityDevelopmentHandbook2012.pdf>

Outlined in substantial detail in The Defence Capability Handbook, the CDG regards capability development as a 5 phase process:²⁵²

Figure 2: Australian Capability Life Cycle



- Needs Phase: “User needs reflect capability gaps derived from strategic analysis, threat assessments, future technologies, current/future operational concepts and current/emerging force structure.”²⁵³ This process is strongly aligned with the TTCP CBP model.
- Requirements: The proposal is refined into a fully costed and defined solution as a prerequisite to budgetary approval. Based on a ‘whole of life’ approach, this stage also includes the assessment of non-capital elements of acquisitions and FIC.
- Acquisition: This phase is run by the Defence Materiel Organisation; however, Service Chiefs are also closely involved.
- In Service: Managed by ADF staff but the DMO is involved in any upgrades.
- Disposal: Joint task - ADF staff and DMO.

2009 Australian Defence White Paper– Critique

Positives

1. A disciplined, thorough & logical process

The 2009 Defence White Paper follows a disciplined, thorough and logical set of stages. These have strong alignment with the TTCP’s capability planning template and produce the basis for a firm set of costed recommendations. As Kim Beazley wrote – “At a stroke the authors cut away 10 years of undisciplined meandering.”²⁵⁴

²⁵² *Ibid.* 4.

²⁵³ *Ibid.*

²⁵⁴ Beazley, K., “In defence of sound military planning.”

2. Recognition of a dynamic strategic environment

The 2009 White Paper proposes a future defence planning process that recognises the need for agile structures.²⁵⁵ Given the dynamic environment in which defence operates, the Australian Government intends to conduct 'Light Papers' in years one, two and three, to be followed by a full Defence White paper in Year five.²⁵⁶ This reflects an attempt to build perpetual awareness into defence planning, as opposed to following a prescriptive four/five year cycle that's inconsistent with the dynamic environment in which defence operates. This process could be likened to correcting the direction of a yacht by periodically tacking back on course.

3. Recognition that governance structures are vital enablers

The 2008 Mortimer review criticised the lack of true accountability across the Australian Defence establishment and addressing this shortcoming occupies a significant part of the 2009 Defence White Paper by way of additional governance.²⁵⁷ The defence planning system now includes a clearly defined role for external advice at the Ministerial level and a requirement that major defence projects are audited by external parties every four years.²⁵⁸ A heavy emphasis has been placed on improving the performance of the DMO and the execution of the Defence Capability Plan through performance hurdles and other cost/benefit tools.²⁵⁹ The CDG appears to have a degree of commonality with the focus of the Capability Management Board in New Zealand albeit at the more formative stages of capability development.

4. Recognition that technology is a vital aspect of capability.

Dealing with technological change is a constant theme within the TTCP's approach to Capability Planning²⁶⁰ and it is pleasing to note the extensive involvement of the DSTO in Australian defence planning structures.²⁶¹ This extends right across the full spectrum of capability planning – from inception to disposal.²⁶² Furthermore, DSTO personnel are

²⁵⁵ Australian Department of Defence, *Defence White Paper 2009*, 109.

²⁵⁶ *Ibid.*

²⁵⁷ Australian Department of Defence, *Defence Procurement and Sustainment Review 2008 - Mortimer Review*, vii.

²⁵⁸ Australian Department of Defence, *Defence White Paper 2009*, 110-112.

²⁵⁹ Australian Department of Defence, *Defence Capability Development Handbook*, xi.

²⁶⁰ "Guide to Capability Based Planning," 4.

²⁶¹ Australian Department of Defence, *Defence Capability Development Handbook*, 20.

²⁶² *Ibid.*

embedded within all deployed ADF units in an attempt to introduce enhanced feedback loops to capability developers and give procurement processes greater agility.²⁶³

2009 Australian Defence White Paper– Critique

Negatives

1. Inconsistency between strategic assessment and final outcomes

Much of 'Force 2030' appears to reflect the perception that China will have the ability to control the northern approaches to Australia within 20 years.²⁶⁴ In doing so, the document implies that the United States and its regional allies will, by 2030, lose their current military dominance in the region and that U.S bases and assets in Asia will also no longer afford operational sanctuary.²⁶⁵ Whether or not this occurs is moot. However, the inconsistency is that Australia's strategic analysis does not (at least overtly) identify these themes in such stark terms.²⁶⁶ Diplomacy may have prevented the 2009 Australian White Paper from being more detailed, which may be the reason for this confused message.

'Force 2030' is also alarmingly incoherent in some other respects. As academic Hugh White notes, "In one passage it seems to suggest that Australia can rely upon the US to defend us from China; another says we should rely on our own forces."²⁶⁷ Hence 'Force 2030' is at least partly inconsistent with the Australian government's own strategic analysis that stresses a relatively benign regional landscape and the ongoing need for stability operations (Army), as opposed to high end military technologies (Navy/Air-force). This suggests Australia is underprepared for middle power contingencies in the South Pacific because of an excessive concentration on high level capabilities that are primarily designed for inter-state conflict.

2. An ideological commitment to military self reliance

The White Paper presents a strategic assessment that stresses the importance of allies and partners.²⁶⁸ However, a paper titled "Dangerous Luxuries," written by John Angevine of the Lowy Institute, argues that Australia actually has an ideological, not strategic quest, for self

²⁶³ Australian Department of Defence, *Defence White Paper 2009*, 133.

²⁶⁴ White, H., "Muddled Report leaves gaps in our defence."

²⁶⁵ *Ibid.*

²⁶⁶ Australian Department of Defence, *Defence White Paper 2009*, 30-39.

²⁶⁷ White, H., "Muddled Report leaves gaps in our defence".

²⁶⁸ Australian Department of Defence, *Defence White Paper 2009*, 93-100.

reliance.²⁶⁹ This has resulted in a misallocation of resources that risks mission failure in mid-level, stabilisation and non-conventional conflicts, exactly the type of operations envisaged by the Australian National Security Strategy and the Government's own strategic analysis.²⁷⁰

3. A silo approach

The capability outputs of the 2009 Defence White Paper also appear mildly inconsistent with the 'whole of government' approach advocated by the TTCP.²⁷¹ For example, alternative ways to meet the challenge of a rising China are not discussed. As a result, academic critics such as John Langmore argue that the Paper "makes a fundamental misjudgement in treating defence as a silo, remote from other aspects of foreign policy" in that it "relies on the assumption of great power conflict."²⁷²

4. Unconfirmed long term capability development funding

The Australian government's commitment of funding certainty between 2009 and 2014 is a positive.²⁷³ However, the vast majority of the new capabilities outlined by the White Paper are firmly outside this period.²⁷⁴ Although the final pages of the White Paper refer to "an extra A\$146bn" in funding, the Federal Government's own budget raises concerns as to the affordability of 'Force 2030' capabilities.²⁷⁵ Also, indexation has been deferred for seven years questioning whether 'Force 2030' is truly an affordable plan at all.²⁷⁶

Conclusion

The 2009 Australian Defence White Paper was commissioned by the Australian Government to "develop a future model for defence capability that identifies strategic tasks and capability goals for the years ahead."²⁷⁷ As this quotation from the Public Discussion Paper released prior to the completion of the White Paper suggests, methodological commonality with the TTCP model is strong. Accordingly, the White Paper follows a logical and well considered framework that matches quite closely the TTCP's capability based planning template.

²⁶⁹ Angevine, J., "Dangerous Luxuries," *Brookings*, May 5th (2011), accessed March 22nd, 2013, <http://www.brookings.edu/research/papers/2011/05/31-australia-defense-angevine>

²⁷⁰ *Ibid.*

²⁷¹ "Guide to Capability Based Planning," 3.

²⁷² Langmore, J, Logan, C and Firth, S. "The Australian 2009 Defence White Paper: Analysis and Alternatives" (paper presented to Austral Policy Forum, 15th September, 2010), accessed March 12th, 2013, <http://www.nautilus.wpengine.netdna-cdn.com/wp.../langmore-logan-firth.pdf>

²⁷³ Australian Department of Defence, *Defence White Paper 2009*, 137.

²⁷⁴ *Ibid.*

²⁷⁵ Walters., P, "The Making of the 2009 Defence White Paper," *Security Challenges*, Winter (2009): 7.

²⁷⁶ *Ibid.*

²⁷⁷ Australian Department of Defence, *Defence White Paper – Public Discussion Paper*.

One of the most important aspects of the 2009 White Paper is the very strong commitment made to improve governance and planning structures.²⁷⁸ Importantly, the defence planning system, with its commitment to a regular stream of ‘mini’ White Papers, is a step towards introducing greater agility to defence planning.²⁷⁹ Also, the introduction of several new advisory boards and a Strategic Reform Program reflects a wish to introduce more rigour and external analysis to decision making.²⁸⁰ Similarly, a number of new initiatives at the DMO are worthy of consideration, particularly the administrative framework of the Capability Development Group encompassed in the Capability Development Handbook.²⁸¹ Whilst these issues are important, one Australian approach is of particular interest, that being that the DSTO is engaged in capability decision making at all levels.²⁸² From conception to disposal, the DSTO is involved in order to ensure that technological issues are considered across the entire capability life cycle.²⁸³ The involvement of DSTO personnel within deployed forces underlines the strength of this commitment.²⁸⁴

Despite the many strengths of the 2009 Defence White Paper, a number of concerns do exist. The most obvious of these is the failure to explicitly link the strategic assessment with defence priorities. This has led to a distorted set of final outcomes and a sense of mild incoherency across the document. Most importantly, the paper fails to outline whether or not United States dominance in Asia will be over by 2030. This question is unanswered yet the bulk of new capabilities assume the end of the current status quo and eventual regional dominance by China. This is inconsistent with the strategic assessment and other issues arise because of this. For example, the inter-state warfare that ‘Force 2030’ assumes is but one of several defence priorities, yet most of the capability decisions reflect a maritime strategy based on the defence of Australia. This is despite the statement that stabilisation operations are likely to dominant in the future.

As with all defence analysis, finding the right blend is a challenge. However, despite some noticeable methodological flaws, the 2009 Australian Defence White Paper has many strengths and a number of the planning and management structures employed are worthy of consideration for use in New Zealand.

²⁷⁸ Australian Department of Defence, *Defence White Paper 2009*, 107-111.

²⁷⁹ *Ibid.* 29.

²⁸⁰ *Ibid.* 14, 112.

²⁸¹ Australian Department of Defence, *Defence Capability Development Handbook*, 1-141.

²⁸² Australian Department of Defence, *Defence White Paper 2009*, 133.

²⁸³ *Ibid.*

²⁸⁴ *Ibid.*

Chapter 7: Defence Planning in TTCP member states - Canada

Defence planning in Canada: some context

Traditionally the premier defence policy and planning document in Canada has been referred to as a Defence White Paper.²⁸⁵ Produced by the Canadian Department of National Defence (DND), White Papers are at best infrequent documents - only five such papers have been submitted since WW2.²⁸⁶ The most recent defence planning document, the 2008 Canada First Defence Strategy (CFDS), was preceded by a policy statement in 2005 and Defence White Paper in 1994.²⁸⁷ Whilst major defence reviews are undertaken on an irregular basis, the Canadian Government augments formal defence planning with various minor reviews and long term capital plans. Analysis of this type includes the Strategic Capability Plan, Capability Outlook, Defence Capability Plan and the annual Report on Plans and Priorities (RPP).²⁸⁸ As can be seen from the diagram below, Canadian defence planning follows a relatively formulaic approach in which analysis occurs on three levels: strategic, operational and tactical.²⁸⁹ In 2000, “capability based architecture” replaced the ‘threat based’ methodology of previous decades.²⁹⁰ This scenario centred approach provides the template for the 2008 CFDS.²⁹¹

²⁸⁵ “Archived Defence Policy”, Canadian Department of National Defence (CDND), accessed March 22nd, 2013, http://www.forces.gc.ca/admpol/defence_policy_archives-eng.html

²⁸⁶ *Ibid.*

²⁸⁷ *Ibid.*

²⁸⁸ CDND. *Report on Plans and Priorities 2012-13* (Ottawa: Canadian Government 2012), 14-17, accessed April 12th, 2013, <http://www.tbs-sct.gc.ca/rpp/2012-2013/inst/dnd/dnd-eng.pdf>

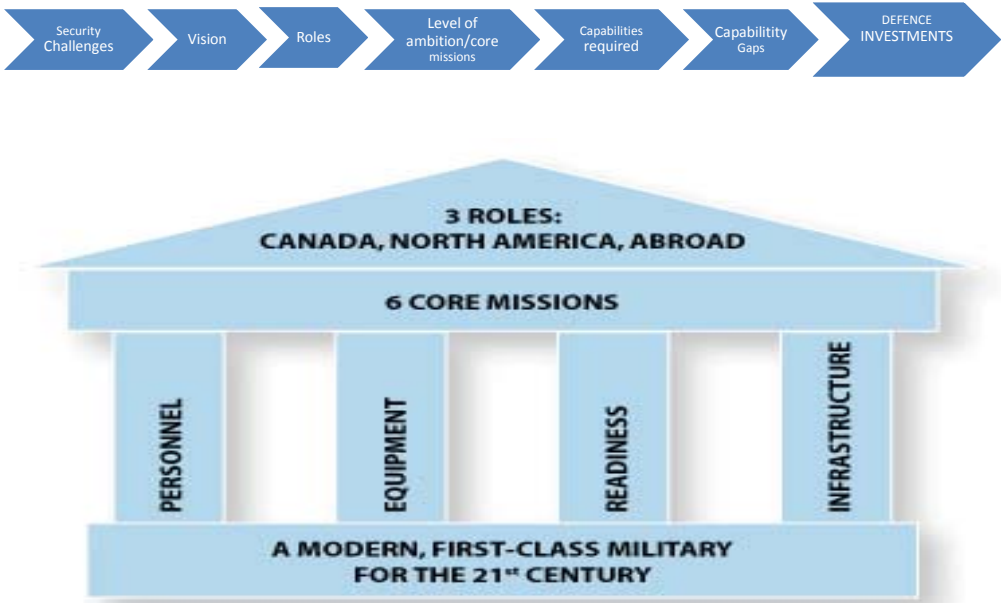
²⁸⁹ *Ibid.* 14.

²⁹⁰ Sloan, E. “Strategic Capability Investment Plan,” *Canadian Defence & Foreign Affairs Institute*, March (2006):

1.

²⁹¹ CDND. *Canada First Defence Strategy* (Ottawa: Canadian Government, 2008), 5.

Figure 3: Canadian Capability Development Process



2008 Canada First Defence Strategy (CFDS): Methodological Approach

- **Government Guidance**

The 2008 CFDS commences with a strategic assessment in the form of a “Strategic Environment” statement.²⁹² This approach, which aligns closely with the term “Security Challenges” in the previous diagram, meets the TTCP requirement for an overarching strategic framework to guide subsequent analysis.²⁹³ However, although the strategic assessment views the security environ through a wide lens and employs a ‘whole of government’ approach, strategic analysis in the 2008 CFDS is very brief (one page) and quite ill-defined.²⁹⁴ For example, the document makes a number of quite vague statements, such as describing the “world as uncertain” and the global environment as “complex.”²⁹⁵ The paucity of specifics to support these statements is noticeable. As a result, the strategic assessment looks somewhat ‘underdone’. Furthermore, apart from mentioning the impact of future climate change on the strategic outlook for the Canadian Arctic, it is more backward than forward looking and a statement of current, not future/emerging, strategic influences.²⁹⁶ Eight major global and regional security themes are covered off but only one of these could be described as truly visionary – the impact of climate change on the strategic

²⁹² *Ibid.* 6.

²⁹³ “Guide to Capability Planning,” 4.

²⁹⁴ CDND, *Canada First Defence Strategy*, 6.

²⁹⁵ *Ibid.*

²⁹⁶ *Ibid.*

balance of the Arctic.²⁹⁷ Cyber warfare doesn't rate a mention although it appears in the section on defence priorities (an inconsistency of process).²⁹⁸ Although the Canadian government produces a strategic review annually, the brevity of strategic analysis within the CFDS appears to provide a very thin foundation upon which to frame a "20 year plan to rebuild Canadian Forces" and "ensure the safety and security of citizens well into the 21st century."²⁹⁹

- **Defence Priorities**

The TTCP Capability Based Planning model advocates strong alignment between Government Guidance and Defence Priorities.³⁰⁰ As a result, defence priorities should be consistent with themes identified by the strategic assessment and a coherent, logical reflection of a government's security priorities.

In Part III of the 2008 CFDS, Canada's defence priorities are outlined in a section entitled "Roles of the Canadian Forces."³⁰¹ Priorities are grouped under three broad headings:³⁰²

1. Defending Canada;
2. Defending North America;
3. Contributing to international peace & security.

These three basic statements are further refined into six more detailed priorities such as being able to "respond to a major terrorist attack" and "lead and/or conduct a major international operation."³⁰³ At their most fundamental level, these priorities reflect the essential strategic tasks of any Canadian government: defending Canada and North America from armed attack and ensuring the capacity to address civil emergencies.

The CFDS's strategic assessment fails to mention the possibility of state based conflict.³⁰⁴ Despite this, the commitment to defend Canada is clearly aligned with this prospect. Nevertheless, there is no explicit link between the third role for Canada's armed force, the somewhat vague reference to "international peace and security," and the Canadian government's strategic assessment.³⁰⁵ The failure to clearly articulate how this concept is connected to the strategic assessment is made more problematic by a focus on current, not

²⁹⁷ *Ibid.*

²⁹⁸ *Ibid.* 6, 7.

²⁹⁹ *Ibid.* 21.

³⁰⁰ "Guide to Capability Planning," 4.

³⁰¹ CDND, *Canada First Defence Strategy*, 7.

³⁰² *Ibid.*

³⁰³ *Ibid.* 10.

³⁰⁴ CDND, *Canada First Defence Strategy*, 6.

³⁰⁵ *Ibid.* 7.

future, strategic themes.³⁰⁶ Although this methodological negative is notable, some positives exist. In particular, ‘whole of government’ solutions provide evidence of a co-ordinated ‘top down’ approach to national security. One instance of this is the Afghan mission, consisting of both civilian and military expertise, which provides an example of well defined links between Defence Priorities and the activities of other arms of government.³⁰⁷

- **Scenario Analysis**³⁰⁸

Scenario analysis is a well embedded element of defence planning in Canada. For example, the CFDS refers to a “rigorous two year planning process ... including scenarios of possible missions that the Canadian Forces may be asked to undertake.”³⁰⁹ The CFDS also refers to a list of “18 scenarios” that were finalised in 2008³¹⁰ and that the scenario set used was endorsed by the Canadian cabinet.³¹¹ Despite high level appraisal, some practical implementation problems appear to exist. A 2010 report prepared by the Canadian Auditor General found that only eight of the 18 scenarios were fully developed and that many of the variables that influence capability delivery were not considered.³¹² This is a very real concern and undermines the efficacy of subsequent steps of the planning process and, by extension, force development proposals.

- **Capability Goals**

Canadian Forces (CF) and the Canadian DND maintain a list of core capability goals built around six mission tasks in Canada, North America and Abroad.³¹³ These guide the formation of the “Canadian Joint Task List” (CJTL) as well as the capabilities expected of individual military partitions (based on PRICIE) within the defence force and accompanying operational concepts.³¹⁴ As a result, the CJTL establishes a framework for describing and grouping all of the tasks that the CF may be called upon to perform. Development of the CJTL began in 1999 when a paper entitled “Strategic Capability Planning,” highlighted the requirement for a method of describing capabilities in the force development process.³¹⁵ The CJTL is a central component of the

³⁰⁶ *Ibid.* 6.

³⁰⁷ “Canada’s Engagement in Afghanistan”, Government of Canada, accessed April 2nd, 2013, <http://www.afghanistan.gc.ca/canada-afghanistan/index.aspx?view=d>

³⁰⁸ CDND, Canadian Defence Research and Development. *Force Planning Scenarios: Methodology, Experiences & Lessons* (Ottawa: Government of Canada, 2010).

³⁰⁹ CDND, *Canada First Defence Strategy*, 5.

³¹⁰ CDND. *The Strategic Capability Investment Plan* (Ottawa: Government of Canada), 6.

³¹¹ McDonald, G., “CFDS One Year On,” *Canadian Defence & Foreign Affairs Institute Journal*, Oct. (2009):2.

³¹² Canadian Auditor General. *Financial Management and Control – National Defence. 2010* (Ottawa: Government of Canada, 2010), 6.

³¹³ CDND, *Report on Plans and Priorities 2011/2012*, 1.

³¹⁴ CDND, *The Strategic Capability Investment Plan*, 16.

³¹⁵ Richards, B. *The Canadian Joint Task List Update Process*. Ottawa: Canadian Directorate of Operational Research, Operational Research Division. 2001, accessed April 4th, 2013, www.drenet.dnd.ca/BASIS/pcandid/www/engpub/DDW

capability-based planning process and traces its evolution to the US Joint Mission Essential Task List (JMETL).³¹⁶ Technology is also an important contributor to Capability Goals in Canada. The defence research agency, Defence Research and Development Canada (DRDC), is responsible for providing technological advice to defence planners.³¹⁷ This extends to new capabilities as well as developing new systematic approaches to defence planning.³¹⁸ Technology is clearly a central reference point in Canadian defence planning. However, the CFDS does not outline the precise manner in which DRDC interacts with defence planning structures.

- **Capability Assessment**
- **Identification of capability mismatches**

The Canadian Joint Task List consists of eight major capability goals which in turn relate to 32 specific capability areas.³¹⁹ These are graded according to importance, the results of which are expressed by way of a Capability Goals Matrix.³²⁰ Each box on the matrix reflects an objective in each of the capability areas. Capabilities are populated with both current and pending capabilities across varying time frames. Whilst the matrix approach requires a subjective assessment as to priorities (inputs), outputs of the matrix provide an objective tool upon which to assess capability gaps.³²¹

The Canadian Department of National Defence also uses operational research tools to support this stage of the capability management process. Three are particularly noteworthy:³²²

1. Capability Assessment Methodology (CATCAM): A prioritisation tool that produces a list of priority capabilities as the basis for capability gap analysis.
2. Capability Discussion Matrix (CapDiM): A decision aid to facilitate discussion as to the merits of optimal capability sets.
3. Strategic Costing Model: A costing architecture that produces high level visualisations of what it costs to develop and operate current and prospective capabilities.

These three tools were utilised in the 2008 CFDS process.

³¹⁶ *Ibid.*

³¹⁷ "Defence Research and Development Canada", CDND, accessed April 3rd, 2013, <http://www.vcds-vcemd.forces.gc.ca/sites/page-eng.asp?page=10415>

³¹⁸ *Ibid.*

³¹⁹ *The Canadian Joint Task List Update Process.*

³²⁰ *Ibid.*

³²¹ *Ibid.* 14.

³²² Blakely, Billyard et al. "Operational Research Tools supporting Force Development Process for Canadian Armed Forces," *Information & Security*, Vol. 23, No. 1 (2009): 81-89.

- **Force Development Options**

The identification of capability gaps is a necessary precondition for the formulation of force development options and logically this stage of the TTCP template has a strong focus on trade-off analysis. Although prioritisation tools were used in the CFDS process (refer above), the document itself does not cover this in any detail. However, what the CFDS does do is unveil a veritable 'laundry list' of planned projects and capabilities over a 20 year period, along with estimated costs.³²³ These are, however, not linked back to the Canadian government's strategic assessment, suggesting a total disconnect between planned capabilities and strategic guidance. Force development options seem to be justified purely on the basis that current capabilities need to be upgraded and/or replaced. That major equipment purchases are not referenced explicitly to a strategic needs analysis is an incoherency of process.

Nevertheless, one particular aspect of the Canadian approach to force development is worthy of closer consideration. The CFDS makes an explicit link between successful capability delivery and key enablers of defence capability. Known as the "Four Capability Pillars" of Personnel, Equipment, Readiness and Infrastructure, the CFDS seeks to ensure the deliverability of capability by making balanced investments in each area.³²⁴ This methodology, which works on a holistic basis across the full capability life cycle, appears to have great merit. Nevertheless, in a worrying report from 2010, the Canadian Auditor General criticises the Canadian DND for focusing on the cost of capital projects, to the exclusion of equally crucial elements such as personnel and infrastructure.³²⁵

- **Balance of Investment/Defence Priorities/Resource Constraints**

The CFDS outlines a proposed funding mechanism under the headline "A New Long Term Funding Framework."³²⁶ Described as a package to "reverse the damage done by major cuts to defence in the 1990's," the funding package intends to put defence on a "firm foundation."³²⁷ References such as these could be criticised as vague as they assume the major cuts were damaging in the first place, something that is not immediately apparent from the strategic assessment. Furthermore, as pointed out previously, the balance of investment is focused on replacement capabilities and not new capabilities required to address previous underinvestment. Thankfully, as the CFDS notes, stated defence priorities are relatively unchanged when compared

³²³ CDND, *Canada First Defence Strategy*, 12.

³²⁴ *Ibid.* 14.

³²⁵ Canadian Auditor General, *Financial management & control – National Defence 2010*, 6.

³²⁶ CDND, *Canada First Defence Strategy*, 11.

³²⁷ *Ibid.* 11, 12.

with preceding defence policy papers (although the strategic assessment is replete with references to an “uncertain world” – yet another inconsistency).³²⁸

- **Affordable Capability Development Plan**

The CFDS provides Canadian Forces with five year funding certainty – the first such time this has occurred.³²⁹ Furthermore, funding is indexed.³³⁰ Affordability is ultimately a political concept and these measures are as far as the Canadian government was prepared to go. Reticence regarding long term defence funding is common. For example, Ellenor Sloan of the Canadian Defence & Foreign Affairs Institute notes that “only on one occasion in recent memory has a Minister of National Defence put his/her signature to a long term force planning document and sent it to the Treasury Board for approval.”³³¹

Canadian Defence Governance Structures

1. Annual Report on Plans & Priorities (RPP)³³²

The RPP is an annual analysis of defence planning, management and reporting mechanisms. However, it is much more than an audit and similar in content to a company Annual Report to the extent it includes measures of performance. The RPP has a particular concentration on outputs.

- a. Program Activity Architecture (PAA): Assessment of new defence capability projects with regards progress toward delivery and the subsequent achievement of desired states of readiness.
- b. Corporate Risk Profile (CRP): Documents the key risks facing Canadian Forces and the Canadian DND and the consequent implications for planning and resource allocation. Includes both internal factors such as funding levels, staffing and deployments as well as external factors such as the evolving strategic landscape.
- c. Financials: Departmental budget (vs.) actual.

2. Key Enablers – “Four Pillars”³³³

³²⁸ *Ibid.* 1.

³²⁹ *Ibid.* 12.

³³⁰ *Ibid.*

³³¹ CDND, *The Strategic Capability Investment Plan*, 26.

³³² CDND, *Report on Plans and Priorities 2011/12*, 3.

The “Four Pillars” is more of a concept than an example of a governance structure. Nonetheless, a number of governance structures exist to *support* the “Four Pillars” concept. For example, specific program activities designed to facilitate key enablers are in place across numerous areas: Defence Science and Technology, Human Resources, Infrastructure and Equipment acquisition/disposal.³³⁴ In particular, the role of Defence R&D Canada (DRDC) in the capability based planning structure is worthy of some further comment. DRDC has a twin focus: the development of new technologies/processes and “inform, enable and respond to Canada’s defence and security priorities, now and in the future.”³³⁵ Whilst the role of the DRDC is not as institutionalised as that of Australia’s DSTO, it is nonetheless clear from the 2008 CFDS that the DRDC was closely involved in the decision making process.³³⁶

4. Management Accountability Framework

Each year, the Secretariat of the Treasury Board of Canada conducts an analysis of management practices using a “10 point Management Accountability Framework” to evaluate and establish accountability at the DND and other major Canadian ministries.³³⁷ The MAF is the Canadian equivalent of New Zealand’s Performance Improvement Framework (PIF).³³⁸

5. Capability implementation

Implementation and delivery of defence capability involves an eight phase process in Canada (as shown below in figure 4).³³⁹

³³³ CDND, *Canada First Defence Strategy*, 14.

³³⁴ “About Defence R&D Canada,” DRDC, accessed April 7th, 2013, [http://www.drdc-rddc.gc.ca/drdc/en/about-
apropos/](http://www.drdc-rddc.gc.ca/drdc/en/about-
apropos/)

³³⁵ *Ibid.*

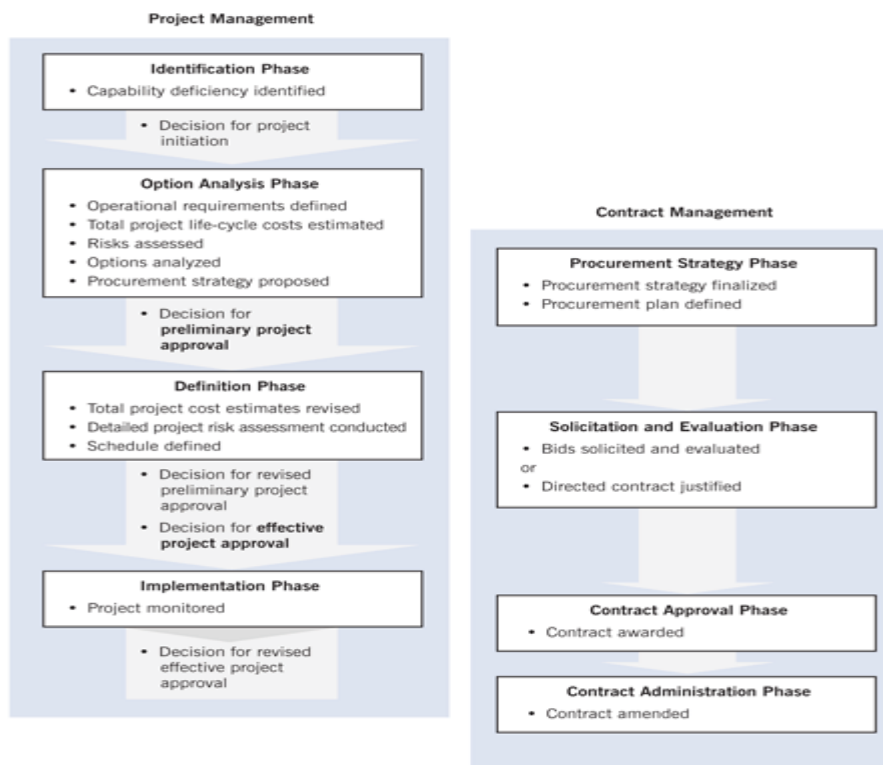
³³⁶ *Ibid.*

³³⁷ “Management Accountability Framework,” Canadian Government, accessed may 6th, 2013, [http://www.tbs-
sct.gc.ca/maf-crg/index-eng.asp](http://www.tbs-
sct.gc.ca/maf-crg/index-eng.asp)

³³⁸ “International References,” Treasury Board of Canada, accessed March 28th, 2013, [http://www.tbs-
sct.gc.ca/maf-crg/ir-ri-eng.asp](http://www.tbs-
sct.gc.ca/maf-crg/ir-ri-eng.asp)

³³⁹ “Acquisition of Military Helicopters,” Canadian Auditor General, accessed April 3rd, 2013, 6, [http://www.oag-
bvg.gc.ca/internet/English/parl_oag_201010_06_e_34289.html](http://www.oag-
bvg.gc.ca/internet/English/parl_oag_201010_06_e_34289.html)

Figure 4: Implementation and Delivery of Capability – Canada



Three levels of governance interact with this process:³⁴⁰

- Program Management Board (PMB): The PMB has overall responsibility for approving projects and for monitoring project performance.
- Joint Capability Requirements Board (JCRB): The JCRB reviews and endorses technical and operational requirements of projects.
- Senior Review Board (SRB): SRB's are established for each large project in order to provide ongoing review and operational oversight.

Audit reports in both 2009 and 2010 were extremely critical of all three boards.³⁴¹ The primary criticisms were: a lack of life cycle planning, poor cost/budgetary analysis and the lack of an integrated human resource strategy.³⁴² The Canadian Auditor General also refers to a weak link “between defence strategy and long term plans to guide decision making and resource management across the Department.”³⁴³ This seems to suggest an incoherency of process attributable to underdeveloped linkages between the various stages of the defence planning

³⁴⁰ *Ibid.* 7.

³⁴¹ *Ibid.* 1-29.

³⁴² *Ibid.*

³⁴³ *Ibid.* 2.

process. A particular problem appears to be the failure to align defence investment plans with strategic assessments (government guidance).

6. Performance Management Framework (PMF)³⁴⁴

The PMF has significant relevance to defence capability delivery in Canada. Whilst the Program Management Board is ultimately responsible for approval and monitoring of projects, individual services have considerable autonomy over elements of the process. In order to ensure greater accountability and quality, the PMF has been introduced to the DND and individual services. The PMF is also aimed at identifying shortfalls in capability on an ongoing basis. For example, the strategic PMF at Maritime Command, produces a performance measurement report that focuses on non operational areas such as budgets (vs.) actual spending, as well as operational areas concentrating on force generation and the number of funded sea days required to achieve overall fleet readiness and satisfy force employment requirements.³⁴⁵

7. Integrated Risk Management Framework (IRMF)³⁴⁶

The Integrated Risk Management Framework is incorporated into both the MAP and PMF with a specific focus on the key risks to the deliverability of defence outputs. The IRMF is commonly employed across all levels of the Canadian government. However, in the case of the DND, the IRMF requires a broad risk analysis including both externalities such as strategic environment, but also internalities such as the 'Four Pillars' concept. The DRDC is also involved in the IRMF with a particular focus on the development of science-based, comprehensive risk management tools.³⁴⁷ These form an integral part of the IRMF.³⁴⁸ The IRMF was assimilated into the PMF in 2007 in preparation for the CFDS.³⁴⁹

Observations: Governance structures in Canadian Defence

³⁴⁴ "National Defence," Treasury Board of Canada, accessed April 3rd, 2013, <http://www.tbs-sct.gc.ca/dpr-rmr/2006-2007/inst/dnd/dnd05-eng.asp>

³⁴⁵ "Canadian Forces," Marine Security Operations Centres Project, accessed April 23rd, 2013, <http://msoc-cosm.gc.ca/doc/bd-di/pss-epp/overview-apercu-eng.asp>

³⁴⁶ "Integrated Risk Management Framework," Treasury Board of Canada, accessed April 3rd, 2013, <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?section=text&id=12254>

³⁴⁷ "A DRDC Management Accountability Framework," DTIC, 74, accessed April 3rd, 2013. <http://www.dtic.mil/dtic/tr/fulltext/u2/a539732.pdf>

³⁴⁸ *Ibid.*

³⁴⁹ "Integrated Risk Management Framework."

The multitude of governance structures is noticeable. Within reason, this can only be regarded as a good thing as it suggests the issue is taken seriously. However, a number of reports from the Canadian Auditor General raise serious doubts as to the quality of governance processes. Most of these issues appear to be from 2010 and before and are likely to have now been remedied. Nevertheless, there appears to be a significant disconnect between intent and practical application, something that will take some time to correct.

2008 CFDS– Critique

Positives

1. Funding certainty

The 2008 CFDS makes a clear commitment to funding the subsequent five years of capability development. The document also commits to indexing. Furthermore, major operations are to be funded on a separate basis to the investment plan and not from the existing defence vote.³⁵⁰ This is a significant positive and provides the fiscal foundation required to replenish and develop Canada’s military capabilities.

2. A clear investment plan

The primary weakness of the CFDS process could also be regarded as its primary strength. Whilst the investment plan has only vague links to strategic analysis, the plan itself is very clear. Timing, costs and equipment types are all explicitly laid out and provide a very clear, 20 year vision.³⁵¹

3. Strong focus on key enablers

The CFDS has a very strong concentration on balanced investments across the “Four Pillars” or primary enablers of defence capability. Although practical application of the methodology appears to differ somewhat from the theoretical, the DND has a very clear commitment to a portfolio focused approach to capability delivery (personnel, equipment, infrastructure & readiness).

4. Use of capability management tools

³⁵⁰ CDND, *Canada First Defence Strategy*, 12.

³⁵¹ *Ibid.* 17.

Perhaps more than any other TTCP member, Canada has made significant investment in operational management and quantitative tools to assist the capability planning process.³⁵² This list includes those tools outlined previously such as CATCAM, CapDiM and a Strategic Costing Model. The attempt to introduce objective approaches to defence planning should be regarded as a clear positive.

2008 CFDS – Critique

Negatives

1. Vague, poorly detailed, backward looking strategic assessment

Poorly defined strategic priorities and the lack of a detailed and forward looking strategic assessment are major shortcomings of the CFDS. For example, David Bercuson, from the Centre of Military and Strategic Studies in Calgary, criticises the document on the following grounds: “anyone with a passion for clarity and transparency in Canadian defence policy will wonder at the paucity of information the policy paper contains.”³⁵³ Similarly, in a 2009 report, the Canadian Auditor General also found that the CFDS failed to “link defence strategy to objectives.”³⁵⁴ As a result, it is difficult to reference a set of priority defence capabilities back to the Canadian government’s strategic assessment. The CFDS also includes a number of vague concepts. For example, the document includes poorly defined concepts such as “a meaningful contribution” and “maximum flexibility.”³⁵⁵

It also seems anomalous that most Defence Priorities are unchanged (vs.) earlier defence planning documents.³⁵⁶ The only truly forward looking theme is the increasing strategic importance of the Arctic Ocean.³⁵⁷ Cyber Warfare, an acknowledged emerging security threat, is not even mentioned, let alone accommodated, in the defence capability plan.³⁵⁸ Consequently, the investment plan is heavily focused on replacing capabilities established by previous White Papers.³⁵⁹ However, this is incoherent as the Canadian Government describes the strategic landscape as “rapidly changed and fluid.”³⁶⁰ In this context, it’s unsurprising that some commentators refer to competition for funding between services in the

³⁵² Caudle. “Homeland Security Capabilities-Based Planning: Lessons from the Defense Community.” 2.

³⁵³ Bercuson, D. “Defence Strategy remains Unclear,” *Legion Magazine* Sept/Oct (2008): 13.

³⁵⁴ “Recommendations,” Canadian Auditor General, accessed April 10th, 2013, http://www.oag-bvg.gc.ca/internet/English/parl_oag_200905_05e_32518.html

³⁵⁵ CDND, *Canada First Defence Strategy*, 9.

³⁵⁶ *Ibid.* 6.

³⁵⁷ *Ibid.*

³⁵⁸ When CFDS was written in 2008 the DRDC did not have a Cyber warfare group.

³⁵⁹ CDND, *Canada First Defence Strategy*, 17.

³⁶⁰ *Ibid.* 2.

immediate aftermath of CFDS.³⁶¹ In summary, the strategic assessment phase of the CFDS - the critical reference point for the remainder of the document - lacks foresight and rigour. Unsurprisingly, the Canadian Defence & Foreign Affairs Institute made the observation that “the CFDS is a regional strategy looking for a region.”³⁶²

2. Governance of capability implementation is weak

Auditor General criticism in both 2009 and 2010, presents major issues of concern in that they drill down to the very core of capability based planning structures in Canada. The lack of an appropriate prioritisation framework, the absence of an effective implementation structure and the failure to regard capability delivery on a holistic basis are all systemic failures. Furthermore, governance structures do not provide a “mechanism to review the content of the CFDS from time to time.”³⁶³ Consequently, capability planning lacks “agility,” a criticism made particularly forcefully by researchers at the Canadian Defence & Foreign Affairs Institute.³⁶⁴

3. Underdeveloped scenario analysis

The Canadian DRDC has made a huge effort over many years to quantify as much of the scenario setting and capability prioritisation process as possible.³⁶⁵ However, given this, it is concerning that the Canadian Auditor General found this area of the CFDS to be underdeveloped. It could well be that the complexity of the issues involved have led to a self-defeating effort to systematise the process. Consequently, it seems DRDC operational research staff were badly bogged down during the process and failed to provide adequate analysis on a number of important scenarios thus undermining the usefulness of capability gap analysis and subsequent force development plans. This suggests that quantitative and operational research approaches have their limits. As noted by both the TTCP and CBP pioneer, Paul Davis of the Rand Corporation, algorithmic approaches are fraught with difficulty.³⁶⁶

4. Rushed

It sounds implausible but when the 2008 CFDS was unveiled by Canadian Prime Minister Harper in May 2008, the announcement was not accompanied by the release of a published

³⁶¹ Staples, S. (Rideau Institute), “Policy Briefing,” *Hill Times*, May 30th 2011, accessed April 18th, 2013, <http://www.hilltimes.com/policy-briefing/2011/05/30>

³⁶² McDonald, “CFDS – One Year On,” 1.

³⁶³ *Ibid.* 11.

³⁶⁴ *Ibid.*

³⁶⁵ Caudle, S, “Homeland Security Capabilities-Based Planning: Lessons from the Defense Community,” 2.

³⁶⁶ Davis, *Analytic Architecture for Capabilities-Based Planning, Mission-System Analysis, and Transformation*, xxiv.

policy document.³⁶⁷ A written version of CFDS was hurriedly put together and released in June of the same year. As a result, the document appears light on detail. For instance, in contrast to the multiple pages of strategic assessment contained in other defence planning documents, such as the Australian Defence White paper, as noted previously the CFDS has but one page on strategic environment.³⁶⁸ This suggests that the process was either rushed or under resourced.

5. Technology – an unclear role in defence planning

The TTCP regards technology as a vital component of defence planning³⁶⁹ and Canada's Defence Technology Agency (DRDC) specifically, and Canadian defence structures in general, have a very strong commitment to technology.³⁷⁰ There is a noticeable emphasis on developing quantitative approaches to scenarios, prioritisation methodologies and operational research.³⁷¹ Given this, it is perplexing that official documents are quite vague when it comes to describing exactly how and when DRDC interacts with the defence planning process.

6. CFDS is a funding allocation document rather than a full White Paper analysis

The CFDS has been criticised by the Canadian Defence & Foreign Affairs Institute on the basis it is more of a funding document than a full White Paper analysis.³⁷² This appears valid. Linkages between capability needs based on strategic analysis and planned equipment purchases are opaque. Furthermore, equipment acquisition is heavily focused on the replacement of existing capability, despite the observation in the CFDS that the strategic environment is much changed.

Conclusion

The analysis and the processes followed by the 2008 Canada First Defence Strategy are well aligned with the TTCP CBP template. However, it is unfortunate that the rush to produce a printed document means the public face of the 2008 CFDS is underwhelming. This undermines both the perception of the resulting investment plan and the analysis that underlies it. That being said, a number of failures of process are also apparent and these cannot be written off on the basis of haste.

³⁶⁷ McDonald. "CFDS – One Year On," 3.

³⁶⁸ CDND, *Canada First Defence Strategy*, 6.

³⁶⁹ "Capability Management Framework," 4.

³⁷⁰ CDND, *Canada First Defence Strategy*, 18.

³⁷¹ Blakely, Billyard et al. "Operational Research Tools supporting Force Development Process for Canadian Armed Forces," 1-16.

³⁷² McDonald. "CFDS – One Year On," 1.

The most notable failing is the extremely weak link between long term future strategic issues, defence priorities and consequent investments. Apart from a rather general statement as to the importance of Canadian sovereignty, little justification is made for the high end capabilities contained in the investment plan. There is also an absence of supporting statements regarding the likelihood of inter-state warfare, the very scenario that these assets are designed for. Furthermore, the CFDS provides no explicit analysis as to future threats and future strategic themes. In fact, most of the strategic assessment is backward looking and, as such, seems to lack vision. Being mindful that defence planning papers are read by many other states, it could be that the tone of the document is deliberately bland. However, a number of academics suggest the CFDS is more of a funding document than a disciplined capability based defence plan. Although technology is a critical part of the planning process in Canada, the actual role of technology and DRDC is also somewhat cloudy in the published CFDS document. More specifically, the CFDS fails to identify how the DRDC interacts with the planning process, whilst the agency itself makes only vague reference to its involvement in the CFDS. Similarly, audits have revealed some serious shortcomings in governance structures and scenario analysis.

Despite these concerns, the Canadian defence planning process embodied in the 2008 CFDS also has some very real attractions. Governance structures are numerous, albeit not always effective, whilst the clarity of the commitment to key capability enablers and technology across the capability lifecycle is a very strong positive. Furthermore, notwithstanding the reservations noted previously, Canada has made a huge investment in quantitative tools that bring more objectivity to a process fraught with subjective inputs.

Chapter 8: Defence Planning in TTCP member states - United States

Defence planning in the United States: some context

Defence planning in the United States (US) is a complex multi dimensional process that culminates in the production of the Quadrennial Defense Review (QDR).³⁷³ This pivotal, congressionally mandated, document outlines the direction and objectives for the US Armed Forces over the subsequent five years and beyond.³⁷⁴ As one would expect, the latest document (QDR 2010) is a substantial body of work and comprises over 100 pages of analysis.³⁷⁵ The key focus is forward looking. However, a substantial part is devoted to winning current conflicts, particularly Afghanistan.³⁷⁶ Despite the size of the document, QDR nonetheless provides an excellent insight as to the mechanics of US defense planning in both wartime as well as peace and across both medium term (five years) and longer periods. Furthermore, as the quote below indicates, a particularly important feature of the QDR is that it seeks to create strong alignment between defence capability structures and the US Federal budget.

*The Quadrennial Defense Review (QDR) directs the Department of Defence to undertake a wide-ranging review of strategy, programs, and resources. Specifically, the QDR is expected to delineate a national defense strategy consistent with the most recent National Security Strategy by defining force structure, modernization plans and a budget plan allowing the military to successfully execute the full range of missions within that strategy. The report includes an evaluation by the Secretary of Defense and Chairman of the Joint Chiefs of Staff of the military's ability to successfully execute its missions at a low-to-moderate level of risk within the forecast budget plan. The results of the 2001 QDR could well shape U.S. strategy and force structure in coming years. The report will be updated as future events warrant.*³⁷⁷

³⁷³ United States Department of Defense (USDOD). *Quadrennial Defense Review (QDR), 2010* (Washington: United States Government Printing Office, 2010), 1.

³⁷⁴ *Ibid.* xvi.

³⁷⁵ *Ibid.* 1-105.

³⁷⁶ *Ibid.* iii.

³⁷⁷ United States Congress - Library of Congress, Congressional Research Service. *Quadrennial Defense Review (QDR): Background, Process, and Issues*. By Brake, J, D. Washington: United States Government Printing Office, June 21st, 2001.

2010 Quadrennial Defense Review: Methodological Approach

- **Government Guidance**

High level strategic analysis in the United States follows a relatively institutionalised mechanism that involves a number of Government agencies. There is however, one document that provides the strategic context for all others: the National Security Strategy (NSS). Produced by the White House, the NSS outlines the top national security priorities based on current and future strategic environments.³⁷⁸ The NSS also describes the type of world the United States seeks to create and the ways in which this can be achieved.³⁷⁹ Particular stress is placed on the ‘whole of government’ approach.³⁸⁰ As a result, the United States security strategy is multi-dimensional and embraces defence as well as “diplomacy ... economics ... homeland security ... intelligence ... (and) strategic communications.”³⁸¹

- **Defence Priorities**

US defence priorities are also framed with reference to the NSS. As a consequence the NSS provides essential strategic guidance for both the QDR and National Defence Strategy (NDS).³⁸² However, the later document differs to the QDR to the extent it concentrates on outlining US defense priorities. For example, the 2012 NDS entitled, “Sustaining US Global Leadership: Priorities for 21st Century Defense,” describes 10 defense priorities and the type of force required to achieve these.³⁸³ Although in recent years the QDR has emerged as a higher profile document, both the QDR and NDS are the responsibility of the Defense Secretary.

US Defence priorities outlined by the US Secretary of Defense are further distilled into a set of military priorities by the Joint Chiefs of Staff by way of a National Military Strategy (NMS).³⁸⁴ The NMS, which draws on strategic themes outlined in the QDR and defense priorities described in the NDS, explains how the Joint Chiefs intend to employ the military to advance American interests.³⁸⁵ The “purpose of this document is to provide the ways and means by which our military will advance our enduring national interests as articulated in the 2010 NSS and

³⁷⁸ United States Government. *National Security Strategy 2010* (Washington: United States Government Printing Office, 2010), 2.

³⁷⁹ *Ibid.* 1-3.

³⁸⁰ *Ibid.* 14.

³⁸¹ *Ibid.* 14-16

³⁸² “Sustaining US Global Leadership: Priorities for 21st Century Defense”, United States Government - January 2012, accessed April 8th, 2013, http://www.defense.gov/news/defense_strategic_guidance.pdf

³⁸³ *Ibid.* 5-6.

³⁸⁴ United States Government. *National Military Strategy 2011: Redefining Americas Military Leadership* (Washington: Joint Chiefs of Staff, 2011) 1, accessed April 5th, 2013, http://www.jcs.mil/content/files/2011-02/020811084800_2011_NMS_-_08_FEB_2011.pdf

³⁸⁵ *Ibid.*

accomplish the objectives in the 2020 QDR.”³⁸⁶ The explicit recognition of both the QDR and NSS underlines the extent to which defence planning in the US follows a sequential methodology. As such the interaction of the NSS, QDR and NMS can be seen in terms of ends (NSS), ways (QDR) and means (NMS). This is very much in line with the TTCP model.

There is however, one very notable departure from the TTCP model - all three documents regard winning current conflicts as a non-negotiable precondition that over rides all other capability analysis. This is shown in the 2010 QDR where the first of four key defence priorities is firmly oriented towards Iraq and Afghanistan:³⁸⁷

- Prevail in today’s wars;
- Prevent/deter future conflict;
- Prepare to defeat adversaries;
- Preserve & enhance the existing volunteer force.

As a result, the forward looking analysis expected by the TTCP is not completely dominant.

- **Scenario Analysis**

Obtaining detailed scenario analysis is understandably difficult. However, US defence planning documents make numerous references to the technique. For example, the 2010 QDR states that “required force enhancements were identified by examining ongoing conflicts, as well as the performance of current and planned force through combinations of scenarios spanning the range of plausible future challenges.”³⁸⁸ In a notable departure from previous reviews, the 2010 QDR takes a less defined posture regarding the necessity of conducting two large scale military operations concurrently.³⁸⁹ For example, mention is made of externally endorsed “diverse scenarios”, reflecting the reduced incidence of state on state conflict.³⁹⁰ Therefore, scenarios appear task-oriented, albeit still assessed over three differing time period: near-term, mid-term, long-term.³⁹¹ The lack of detailed information concerning actual scenarios makes it difficult to assess the extent to which tasks are approached on a holistic basis or the extent to which alternatives are considered. It is also unknown as to how scenarios are generated and approved. However, given that QDR is a technocratic document, the US Secretary of Defence is likely responsible.

³⁸⁶ *Ibid.*

³⁸⁷ USDOD, *QDR 2010*, viii.

³⁸⁸ *Ibid.* vii.

³⁸⁹ *Ibid.* vi.

³⁹⁰ *Ibid.* 18. 42.

³⁹¹ *Ibid.* 17.

- **Capability Goals**

The 2010 QDR outlines Capability Goals in a section entitled “Rebalancing the Force.”³⁹² Six specific “key missions” are outlined and these draw directly on the four key defence priorities identified above.³⁹³ Conclusions reflect current capability partitions which are explicitly identified. However, it is very noticeable that the force composition of the US military is identified on a service by service basis. Service Chiefs are therefore responsible for ensuring labelled capabilities match actual capabilities. The TTCP template also stresses the relevance of “Future Environment” when assessing Capability Goals.³⁹⁴ This is a very noticeable aspect of the 2010 QDR. As well as consideration of emerging strategic themes, new and emerging technology is assessed in relation to each of the six “key missions.”³⁹⁵ The contribution of Operating Concepts to Capability Goals is also considered in the context of what the QDR describes as “training, doctrine and force posture.”³⁹⁶

- **Capability Assessment**

Capability Assessment reflects both current capabilities and capabilities planned, or due, for delivery within an analysis timeframe.³⁹⁷ The 2010 QDR makes explicit mention of this process and new/pending capabilities are identified in relation to the six “key mission” areas.³⁹⁸ Taking guidance from the National Security Strategy and earlier stages of the QDR process, a key finding of the 2010 analysis is the inadequate provision of enabling capabilities along with a second related theme in favour of greatly enhanced levels of agility and adaptability.³⁹⁹ Both of these findings make a strong link between the suitability of current and planned capabilities and the broader strategic environment contained within the National Security Strategy.

- **Identification of Capability Mismatches**

QDR 2010 describes how capability gaps are identified with reference to the six key mission areas.⁴⁰⁰ Each gap reflects shortcomings identified by scenario analysis but, again, detail as to what these are, or how they are generated, is completely absent from the document. Of interest, the identification of capability mismatches has a particular focus on more distant time periods, as

³⁹² *Ibid.*

³⁹³ *Ibid.*

³⁹⁴ “*Capability Based Planning*,” 4.

³⁹⁵ USDOD, *QDR 2010*, 17.

³⁹⁶ *Ibid.*

³⁹⁷ “*Capability Based Planning*,” 4

³⁹⁸ USDOD, *QDR 2010*, 17.

³⁹⁹ *Ibid.* 18.

⁴⁰⁰ *Ibid.* 17.

well as the “fit” between “programmed forces and the demands that may be placed on them in the future.”⁴⁰¹

- **Force Development Options**

This stage of QDR 2010 is also framed in relation to the six key mission areas. Essential capability initiatives are outlined, each of which seeks to address a specific capability mismatch or shortfall. This list is not exhaustive, with three to four key capability enhancements identified for each of the six priority tasks.⁴⁰² The methodical nature of this stage of QDR is extremely apparent.

Desired capabilities are outlined, priorities identified and reference made to interoperability with other government agencies. Furthermore, although current operations are at the forefront of force development options, the 2010 QDR makes it clear future themes are still very much part of the analysis framework. For example, host nation leadership in preference to the large scale counter insurgency campaigns that currently dominate military operations.⁴⁰³ Force development options are also strongly oriented towards new technology. Reference is made to a number of forward looking studies that involve emerging technologies and doctrines.⁴⁰⁴ These are assessed on a 20-30 year forward looking basis.⁴⁰⁵

- **Balance of investment**

Fiscal context is one of the key influences in QDR 2010 and once force development options are identified, investment decisions must be made within given budgets. Prioritisation decisions are inevitable. However, the document itself makes little specific reference to trade-off decisions made within each of the six priority areas or trade-offs between them. Detail is relatively sparse. Whilst a collection of programs are justified for cancellation on the basis of reassessed priorities, the methodology underlying each decision is not revealed.⁴⁰⁶ Despite this shortcoming, the methodical nature of the QDR is again apparent. Investment decisions are identified in relation to the six “key missions,” each of which reflects established defence priorities and strategic assessments.⁴⁰⁷ This has a very strong alignment with the TTCP template.

- **Affordable Capability Plan**

One of the key aspects of QDR 2010 is to provide a fiscal roadmap for the subsequent four years and the importance of affordability is inescapable. As the document itself notes, “QDR recognises

⁴⁰¹ *Ibid.*

⁴⁰² *Ibid.* 17-48.

⁴⁰³ *Ibid.* 28.

⁴⁰⁴ *Ibid.* 32.

⁴⁰⁵ *Ibid.* 33.

⁴⁰⁶ *Ibid.* 39.

⁴⁰⁷ *Ibid.* 17-48.

the current fiscal challenges ... and makes difficult tradeoffs where these are warranted.”⁴⁰⁸ Therefore, the main focus is to identify an Affordable Capability Plan and provide the structures required to win current conflicts, without endangering long term capability development. Of interest, the 2010 QDR sought an additional US\$15bn in FY2011 (vs.) pcp, an increase of 2.2% despite the parlous state of the US Federal budget.⁴⁰⁹ As a result, the 2010 QDR could be considered a wartime document, something the Secretary of Defense clearly notes.⁴¹⁰

QDR and US Defence Governance structures

1. Defense Risk Management Framework (DRMF)⁴¹¹

The DRMF is based on the precept that risk is an inherent aspect of all defence organisations and that these risks come in many forms. The framework looks to mitigate risk by identifying “existing and emerging issues that could compromise the ability of the US Department of Defense (DOD) to execute defense strategy.”⁴¹² In order to manage these, the DOD uses a framework comprised of seven elements:

1. Operational Risk: Requires assessment of the Departments near term ability to execute current, planned and contingency operations.
2. Force Management Risk: Defence organisations are heavily reliant upon their people: recruitment, training, and equipment for them. It requires the DOD to examine its ability to provide appropriate personnel.
3. Institutional Risk: The need for appropriate management and business practises as well as the organisation needed to support the execution of military missions across near term, mid-term and long term periods.
4. Future Challenges Risk: The ability to execute future missions successfully and hedge against shocks. It requires superior military capabilities (vs.) adversaries in the mid to long term.
5. Strategic Risk: The ability to implement priority objectives.
6. Military Risk: The ability to resource, execute and sustain military operations.
7. Political Risk: The risk derived from the perceived legitimacy of US actions and the ability to convince partners and US voters as to the merits of certain courses of action.

⁴⁰⁸ *Ibid.* 2.

⁴⁰⁹ “Military Budget,” US Army News, accessed March 5th, 2013, http://www.armytimes.com/news/2010/02/military_2011_budget_QDR_020110w/

⁴¹⁰ USDOD, *QDR 2010*, i.

⁴¹¹ *Ibid.* 90.

⁴¹² *Ibid.*

The framework considers risk across various time frames: near-term, mid-term and long-term periods.

Several very revealing observations as to the theoretical underpinnings of the US approach to risk management are contained within the 2010 QDR. Risk management employs a “multi disciplinary” approach that draws on a diverse set of areas, including “quantitative tools and scenario analysis, informed judgments and expert opinions.”⁴¹³ The intention is to create a dynamic approach to risk management, so as to increase decision making agility. The concept of agility is also relevant with regards to the pace of technological development. In fact, the DOD accepts that it is struggling with the pace of technological change.⁴¹⁴ As a result, the “department’s options for managing risk with respect to science and technology trends, must be synchronised with efforts by other agencies, as well as the private sector ... and academic interests.”⁴¹⁵

2. Defence Acquisition Board (DAB)⁴¹⁶

The 2010 QDR highlights a series of problems relating to acquisition processes and as such the creation in 2009 of the Defense Acquisition Board reflects a deep frustration with cost over-runs and late delivery of programs. These problems have a familiar ring, as do some of the solutions, such as ‘whole of life’ cost analysis. The latest QDR continues with the theme of improved procurement and the document includes some interesting approaches:⁴¹⁷

- External costs analysis;
- External experts to assess new technologies (threats and opportunities);
- Focus on agility.

The last of these is somewhat vague and the approach looks like more of the same, only in shorter time periods.⁴¹⁸ The QDR makes reference to the need for way to quickly prioritise acquisition requirements, suggesting that a suitable cost/benefit methodology has yet to be found. However, agility is likely to improve as a result of the renewed focus on emerging technologies (especially disruptive).

⁴¹³ *Ibid.* 89.

⁴¹⁴ *Ibid.* 94.

⁴¹⁵ *Ibid.*

⁴¹⁶ “Defense Acquisition Board,” US Department of Defense, accessed April 15th 2013, <https://dap.dau.mil/glossary/Pages/1738.aspx>

⁴¹⁷ USDOD, *QDR 2010*, 81.

⁴¹⁸ *Ibid.* 80.

3. Joint Capabilities Integration and Development System (JCIDS)⁴¹⁹

The JCIDS was established in the lead up to the 2010 QDR in order to identify and co-ordinate the “acquisition and evaluation” of joint military capabilities between services.⁴²⁰ The key focus of the JCIDS is to support the “capability management process” and more specifically, “requirements, planning, programming, budgetary and execution processes.”⁴²¹ The JCIDS supports other DOD agencies, such as the Joint Capabilities Board and Functional Capabilities Board.⁴²²

4. QDR Independent Panel

The above group is a bi-partisan panel charged with assessing “assumptions, strategy, findings and risks” in the QDR and comprises “20 national defence experts and retired senior military leaders.”⁴²³ Members are nominated by both the Secretary of defence and relevant Congress committees. Sub panel working groups focus on “prospects for 21st century conflict, capabilities, force structure, personnel, acquisition, contracting and strategic planning processes.”⁴²⁴ The 2010 panel consulted extensively with both non- government and government experts.⁴²⁵

NSS and Strategic Defence & Security Review – Critique

Positives

1. US defence planning is extremely methodical and disciplined

US defence planning processes are extremely methodical, even mechanistic. The NSS sets the strategic tone and subsequent analysis is referenced back to the NSS as the master document. Although slight differences exist, the 2010 QDR follows a highly disciplined methodology that seems closely aligned with the TTCP model of capability based planning.

2. Investment decisions consistent with NSS guidance

The NSS makes the clear statement that asymmetric warfare, and non- traditional forms of conflict, will be ongoing features of the strategic landscape. The 2010 QDR is strongly aligned

⁴¹⁹ “JCIDS Manual,” USDOD, accessed April 17th, 2013, http://jic.fhu.disa.mil/jitc_dri/pdfs/jcids_manual_19jan12.pdf

⁴²⁰ *Ibid.*

⁴²¹ *Ibid.* 1.

⁴²² *Ibid.*

⁴²³ “QDR Independent Review Panel,” USDOD, accessed 14th April, 2013,

<http://www.usip.org/programs/initiatives/quadrennial-defense-review-independent-panel>

⁴²⁴ *Ibid.*

⁴²⁵ *Ibid.*

with these concepts. Investment decisions are referenced back to the NSS whilst DOD efforts to engage with other arms of government are also consistent with these guiding themes.

3. Very focused on future technologies

The US military is a high technology machine and reference to new and/or emerging technologies is a constant theme in the 2010 QDR. Of interest, the DOD accepts that the pace, at which new technologies are emerging, means they are unable to keep apace. The DOD accepts that the private sector has much to offer, not just in terms of new technologies but also as a way to alert the military to commercially available threat technologies. US defence planning structures have a noticeable stress on technology as an enabler of greater agility.

4. Permits consideration of alternative strategies

The concept of advanced technology goes well beyond physical assets. Reference in the 2010 QDR is made to “iterative, interactive war games ... to explore alternative strategies and operational concepts in an environment that tests forces against an intelligent adaptive adversary.”⁴²⁶ The intention is to create a mechanism that challenges group thinking and looks for innovative, alternative solutions that neutralise silo mentalities. No further details as to the mechanics of the above process are available publically.

5. Governance: risk management framework (DRMF), JCIDS & QDR Independent Panel Review

Governance structures are extensive in the US defence planning process and the QDR shows a real appreciation of the numerous risks that face military organisations, any of which can compromise the delivery of optimal outcomes. The DRMF is an explicit recognition of this and consequently has great merit. JCIDS is another key governance element and one that appears to have very strong commonality with the intent of the NZDF’s Capability Management Board, whilst the Independent Panel Review provides an external cross check of capability recommendations.

6. 2010 QDR is not completely dominated by current wars

The QDR seeks to manage the inevitable conflict between meeting the needs of today’s wars without compromising future defence capabilities. QDR is a longer term planning document that must also, inevitably, accommodate current conflicts. It should be regarded as a positive that this difficult balance is explicitly identified by the Secretary of Defence.⁴²⁷

⁴²⁶ *Ibid.* 41.

⁴²⁷ *Ibid.* i.

7. Focus on a military workforce

The 2010 QDR has an enormous focus on human resources.⁴²⁸ The contribution of a well trained, motivated and focused workforce is a pivotal enabler for militaries. The 2010 QDR suggests the US military establishment has a deep appreciation of this issue across various time scales.

8. QDR 2010 focuses on enhanced agility

Increased agility of decision making is a key element in a large section of the 2010 QDR entitled “Reforming How We do business.”⁴²⁹ Importantly, the DRMF has a pronounced focus on quicker acquisition processes.⁴³⁰ Nevertheless, the 2010 QDR is heavily focused on acquisition as a whole, not just faster delivery. More resources, external costing and technological analysis, as well as new systems of delivery, are all elements of a huge reform package.⁴³¹ This also extends to ‘whole of life’ costs. The focus on agility extends to operational configurations as well. For example, more special forces and lighter more mobile equipment.⁴³²

9. QDR is a Congressional document: Trade-off decisions and resourcing constraints are subject to public debate⁴³³

As QDR is a Congressional document, it is open to an enormous amount of scrutiny and the subsequent need to align military direction with political direction. In the same light, capability decisions need to be justified on the basis of impartial trade-off processes. Furthermore, as QDR is debated by Congress, the document is firmly placed in a fiscal context and, as such, resource constraints are a significant issue. This process of reconciling strategic objectives within given resources requires political decision making and the document is presented in a manner consistent with this requirement.

10. External/independent expertise

The 2010 QDR makes a number of references to the utility of external expertise, such as the QDR Independent Panel, and it is clear the DOD regards the use of independent input as a way to cross check internal decisions. This includes areas as diverse as strategic analysis, cost analysis and emerging technology. Particular focus is on academic institutions and private enterprises.

⁴²⁸ *Ibid.* 92.

⁴²⁹ *Ibid.* 73.

⁴³⁰ *Ibid.* 89.

⁴³¹ *Ibid.* 73-88.

⁴³² *Ibid.*

⁴³³ *Ibid.* xi.

NSS and Strategic Defence & Security Review – Critique

Negatives

1. QDR is heavily influenced by current deployments

The tone and intent of the QDR is that of a planning document. However, almost inevitably QDR is heavily influenced by the imperatives of winning in Iraq and Afghanistan. Despite this, US defence planners have made a clear effort to match the purpose of QDR as a medium-term planning document with actual outcomes. This is a difficult balance.

2. Lack of a specific cost/benefit technique?

QDR 2010 does not provide details of cost/benefit analysis. However, it does make mention of quantitative methodologies and the link between scenario analysis and trade-offs.⁴³⁴ Given the sensitive nature of scenarios and their associated operational details, it is perhaps unsurprising that public documents are short on specifics.

3. More force agility? Yes, but few details

The need for more agile acquisition processes is a key focus of QDR 2010.⁴³⁵ However, details are relatively scant; for example, the need for quicker delivery is identified. However, the three stage process outlined appears little more than a faster, better resourced version of the current approach.⁴³⁶ Furthermore, the document is a compromise. The NSS gives clear guidance that greater agility is required to meet today's asymmetric threats, conduct counter insurgency and confront terrorists. However, most if not all, traditional means of war are retained and, in some cases, enhanced.⁴³⁷

Conclusion

Defence planning in the United States is based on Capability Based Planning and the 2010 QDR is a reflection of this. The process follows a disciplined and logical progression that is easy to follow and major investment decisions are easily referenced back to the master document – the National Security Strategy. Consequently, the methodology employed is strongly aligned with the TTCP template, albeit with a few exceptions.

One of the most obvious departures from the TTCP approach is that current US defence planning is, understandably, influenced by the needs of ongoing conflicts. As a result, the document is an

⁴³⁴ *Ibid.* 80.

⁴³⁵ *Ibid.*

⁴³⁶ *Ibid.* 75.

⁴³⁷ *Ibid.* 45.

inevitable compromise between capabilities required now and those required in the future. However, this does not come at the cost of forward planning, and a major theme of the document is rebalancing the force with the future in mind. Consequently, the 2010 QDR has a very strong focus on tomorrow's wars and the various risks that the DOD must overcome in order to deliver strategic objectives.

A particularly important development in this regard is the establishment of a dedicated risk management framework (DRMF). This covers a multitude of near term, mid-term and long term risks and describes how these are to be ameliorated. Human resources are identified as a particularly important element in the risk management framework, along with highly agile acquisition systems.

The QDR process and US defence planning structures also have a very strong stress on governance. The QDR itself is subject to independent review and a very noticeable element of US defence planning is the willingness of the DOD to access external expertise across many differing fields. The use of external technological expertise is a particular focus and regarded as a key enabler of increased agility, both on the battlefield and amongst key support activities, such as acquisition. The near obsession with technology even extends to scenario setting and the consideration of alternative operational solutions. Furthermore, although short on detail, the US obviously uses some sort of complex cost/benefit methodology.

To conclude, the QDR process is clearly 'strategy driven' and employs a 'whole of government' approach in pursuit of "agile and flexible armed forces."⁴³⁸ The influence of the TTCP defence planning methodology is clearly dominant. In doing so, QDR 2010 follows a relatively formulaic structure but, because of this, most of the key recommendations remain consistent with its original intent. Finally, the importance of technological themes and governance structures within the methodological framework that supports QDR should be of much interest to defence planners in New Zealand.

⁴³⁸ *Ibid.* 1.

Chapter 9: Defence Planning in TTCP member states - United Kingdom

Defence planning in the UK: some context

The UK has a very wide definition of the security environment and employs a single Security and Intelligence budget across different departments and agencies.⁴³⁹ The National Security Council, comprised of key Ministers and senior members of the Armed Forces, is responsible for the bi-annual National Security Risk Assessment (NSRA) and the National Security Strategy (NSS) which is produced every five years.⁴⁴⁰ The NSS views national security on a very broad basis:⁴⁴¹

- Terrorism and other non-conventional attacks including Cyber;
- WMD proliferation ;
- Transnational & organised crime;
- Failed states & global instability;
- Civil emergencies (pandemics/floods etc);
- Climate change;
- Economic context.

NSS documents make it abundantly clear that the UK Government regards defence as one of the many elements that constitute the national security apparatus and since 2008 has sought to provide “a single, overarching strategy, bringing together the objectives and plans of all departments, agencies and forces involved in protecting our national security ... and the latest in series of reforms intended to bring greater focus and integration to our approach.”⁴⁴² The result is an extensive set of security priorities, drawn from an equally diverse collection of views and sources of which the armed forces provide but one. For example, it is not until page 43 of the 2008 NSS that the armed forces are even mentioned, in a section entitled “Defending the UK from State Led Threats.”⁴⁴³ However, the NSS feeds into a number of subsequent levels, one of which involves the Ministry of Defence (MoD). On the basis that the NSS provides the ‘ends,’ then the annual Strategic Defence & Security Review (SDSR) provides the ‘ways and means’ to deliver security priorities and the UK MoD makes it plain

⁴³⁹United Kingdom (UK) Government. *National Security Strategy (NSS) 2010 – A Strong Britain in an Age of Uncertainty* (London: HM Stationery Office, 2010), 3, accessed May 2nd 2013, http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_191639.pdf

⁴⁴⁰ *Ibid.* 5.

⁴⁴¹ *Ibid.* 27-31.

⁴⁴² UK Government, *NSS 2010*, (1.7), 4.

⁴⁴³ UK Government. *National Security Strategy (NSS) 2008* (London: HM Stationery Office 2008), (4.62), 43.

that it regards the SDSR as an example of capability planning in practise.⁴⁴⁴ The SDSR has a forward focus of 10 years which is the same as the NZDF Defence Capability Plan.

The primary focus of this analysis will be on the 2010 NSS and the 2010 SDSR. Although the latter is reviewed annually, the 2010 SDSR was selected as it was formulated immediately after the most recent NSS and, as such, illustrates the methodological interaction between high level strategic assessment of the NSS and subsequent defence planning outcomes in the SDSR.

2010 SDSR (Defence) – methodological approach

- **Government Guidance**

The 2010 NSS identifies eight National Security Tasks, (NST) that together comprise the core security priorities of the UK.⁴⁴⁵ As a result, the NSS provides the high level guidance required for a number of UK Government Departments, including the MOD, to prioritise spending. This blend of grand strategy and value for money is a noticeable theme in the 2010 NSS document, as shown in the quote: “The cost effectiveness of capabilities will be measured by what they offer and how effective they are at addressing the defence and security challenges of the 21st Century.”⁴⁴⁶

- **Defence Priorities**

The eight National Security Tasks provide the strategic context for the 2010 Defence and Security Review (SDSR) as well as the contribution of the Armed Forces to these tasks which are expressed in seven key military tasks.⁴⁴⁷ The Military Tasks List (MTL) also outlines the expectations the UK Government has of the Armed Forces and consequently represents the UK’s defence priorities. These priorities are quite general. For example, “defending the UK and its territories,” is one of the seven.⁴⁴⁸ Recognising the dynamic nature of the UK strategic environment, the MoD plans to update the MTL every five years to match the cycle of the NSS.⁴⁴⁹

⁴⁴⁴ UK Government, *NSS 2010*, 3.

⁴⁴⁵ *Ibid.*

⁴⁴⁶ *Ibid.* 2.

⁴⁴⁷ UK Government, *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review (SDSR)* (London: HM Stationery Office 2010), 2.12, 17, accessed May 2nd, 2013, http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_191634.pdf

⁴⁴⁸ *Ibid.*

⁴⁴⁹ “Submission to Strategic Defence and Security Review, 2010,” UK House of Commons, 7, accessed May 5th, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/761we05.htm>

- **Scenario Analysis**
- **Capability Goals**
- **Capability Partitions**

The MTL provides the basis for the next stage of the SDSR process – the establishment of five Defence Planning Assumptions or DPA’s. Describing DPA’s as “a planning tool to guide us in developing our forces rather than a set of fixed operational plans or a prediction of the precise operations we will undertake,” the intention appears to be to outline the size of operations the MoD plans to configure for and how long such operations are expected to last.⁴⁵⁰ However, DPA’s are relatively imprecise with regards to detailed scenarios. For example, only three types of operations are described and the UK MoD explicitly states “that DPA’s help us to structure and scale our forces, rather than to plan for specific operations.”⁴⁵¹ However, it is very noticeable that the scenarios used by the UK have very precise deployment time periods. Operations are broken down into two types: enduring and non-enduring. DPA’s also show a great awareness of the concurrency issues that inevitably arise with any deployment.⁴⁵² The SDSR states that “DPA’s comprise a force driving concurrency set, precisely to ensure that our Armed Forces can meet enduring standing commitments, while retaining sufficient contingency to deal with the unexpected.”⁴⁵³

It is also notable that Defence Planning Assumptions are essentially a merger of three core TTCP concepts: “Scenarios,” “Capability Goals” and “Capability Partitions,” in the manner in which they draw an explicit link between required tasks and required capabilities.⁴⁵⁴ For example, one DPA envisages an enduring stabilisation operation at around brigade level, requiring up to 6,500 personnel with maritime and air support as required.⁴⁵⁵ As a result, very broad categories of complex capabilities are combined into a single task focused configuration. The concept of Defence Lines of Development (DLOD) is also relevant to this stage. Recent studies by the UK MoD suggest that a renewed focus is now being given to capability enablers, as expressed in the acronym TEPIDOIL (Training, Equipment, Personnel, Information, Doctrine & Concepts/Organisation, Infrastructure and Logistics).⁴⁵⁶

⁴⁵⁰ UK Government, *SDSR 2010*, 2.13, 18.

⁴⁵¹ *Ibid.*

⁴⁵² *Ibid.*

⁴⁵³ *Ibid.*

⁴⁵⁴ “Capability Based Planning,” 4.

⁴⁵⁵ “Defence Select Committee” UK House of Commons, 90, updated May, 2013, first accessed March 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>

⁴⁵⁶ “Cross Defence Lines of Development,” UK Ministry of Defence - Defence Science and Technology Laboratory (DSTL), Strategy & Capability CDE Call, UKMOD 2011, accessed May 3rd, 2013, <https://www.dstl.gov.uk/>

- **Operational concepts**

The UK MoD provides very limited detail regarding operational concepts. This is understandable as the area is sensitive. Nonetheless, official defence documents from the UK MoD reveal that 41 individual capability studies were conducted in the SDSR process and that these were based on standardised operational concepts.⁴⁵⁷

- **Future Environment**

Written evidence from the MoD suggests that the impact of future technological developments on the UK's threat environment was not considered formally in the SDSR.⁴⁵⁸ Instead technology was considered by the Green Paper commissioned subsequent to the completion of SDSR.⁴⁵⁹ In this context it seems the UK is more focused on developing new defence technologies than considering the impact of technology on defence planning and defence policy development. This focus is supported by a series of quotes from senior UK Ministers. For example, in 2010, the then Minister of Defence Technology, Peter Luff, was quoted as saying, "I am impressed by the visible and effective way that MBDA (*missile manufacturer*), the MoD, and UKTI DSO (UK Trade & Investment Defence & Security Organisation) are working closely together" and that "initiatives such as the Weapons Technology Centre show that working with the wider supply base enables coherent planning and delivery of weapons, allowing industry to influence technology investment at an early stage of acquisition."⁴⁶⁰ ⁴⁶¹ Also of note, the UK has a Defence Industrial and Technology policy that seeks to secure independently developed technologies. For example, a recent MoD Green Paper entitled "National Security through Technology" advocated a minimum 1.2% of the defence budget to R&D.⁴⁶² However, the stress of this approach does not equate to the broad interpretation of "Future Environment" envisaged by the TTCP.⁴⁶³

⁴⁵⁷ *Ibid.* 85.

⁴⁵⁸ "Defence Select Committee," UK House of Commons, annex C, accessed May 5th, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/761we05.htm>

⁴⁵⁹ *Ibid.* Annex B.

⁴⁶⁰ Hon P Luff. Speech delivered by Minister for Defence Equipment, Support and Technology at the Royal Aeronautical Society Weapon Systems & Technology Conference, Ministry of Defence Boscombe Down, Salisbury. Thursday 24 February 2011.

⁴⁶¹ Luff also complained that "the acquisition system is tailored more to procure the highest specification kit, and therefore to over commit our budget", suggesting the presence of traditional procurement models within the UK's defence structures.

⁴⁶² "MOD sets out plans to ensure investment in state of the art defence equipment," UK Ministry of Defence, February 2012, accessed May 5th, 2013, <http://www.mod.uk/DefenceInternet/DefenceNews/EquipmentAndLogistics/ModSetsOutPlansToEnsureInvestmentInStateoftheartDefenceEquipment.htm>

⁴⁶³ "Capability Based Planning," 4.

- **Capability Assessment**

The TTCP's Capability Based Planning model holds that Capability Assessment is a subset of both Capability Goals and Current/Planned Capabilities.⁴⁶⁴ Although, in the case of the SDSR, the later of these two factors was clearly the dominant influence. Judging from the tone of both service and public submissions to the Defence Committee, Capability Assessment was essentially held hostage by existing commitments as opposed to decisions based on disciplined, objective processes.⁴⁶⁵ As a consequence, the capability assessment stage of SDSR was a highly politicised process. The methodology certainly included planned or pending capability acquisitions. However, the cost of super projects, such as the two Queen Elizabeth (QE) class aircraft carriers, meant premature consideration of tradeoffs.⁴⁶⁶ Consequently, the process seems to start with the preconception of 'this is what we have coming and this is what needs to go in order to pay for it' rather than asking 'what capabilities do we actually need?'

- **Identification of Capability Mismatches**

As suggested above, the issue of capability mismatch was pivotal to SDSR. Capability gap analysis was widespread, albeit somewhat distorted by the premature influence of affordability.⁴⁶⁷ The acceptability of identified capability gaps provides the primary source of discontent in submissions to the House of Commons Defence Committee.⁴⁶⁸ Many of these comments attempt to link identified gaps back to the NSS, a core tenant of the TTCP approach. However, in doing so, several submissions raise significant concerns as to the consistency between actual decisions and NSS guidance.

- **Force Development Plans**

The 2010 SDSR's primary *raison d'être* was to optimise the UK defence force configuration by 2020.⁴⁶⁹ Therefore, one of the key outputs of the SDSR process was the formulation of a Force Development Plan. However, the path dependent nature of defence acquisitions is

⁴⁶⁴ *Ibid.*

⁴⁶⁵ "Defence Select Committee - August 2011" UK House of Commons, accessed May 3rd, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/163904.htm>

⁴⁶⁶ *Ibid.*

⁴⁶⁷ *Ibid.*

⁴⁶⁸ *Ibid.*

⁴⁶⁹ UK Government, *SDSR 2010*, 1.

readily apparent, to the extent these plans are severely distorted by existing commitments such as the QE aircraft carriers.⁴⁷⁰ The 10 year planning focus of the SDSR is embodied in the concept of “Future Force 2020.”⁴⁷¹

- **Balance of Investments**

The SDSR presents a very clear Balance of Investments profile but arguably these are not based on the NSS but rather they reflect the dominance of existing commitments such as the QE aircraft carriers.⁴⁷² Nonetheless, some decisions appear consistent with high level NSS guidance. Such an example is the cancellation of two destroyers in order to buy multi-role frigates, which matches the NSS emphasis on cost effective capabilities.⁴⁷³

- **Defence Priorities/Resource Constraints**

Resource constraints are the ‘straight jacket’ of the SDSR process. Interestingly, the Comprehensive Spending Review (CSR) was undertaken in parallel with the SDSR.⁴⁷⁴ This seems to have set the tone for all subsequent discussions and decisions. Furthermore, the involvement of Treasury in both the NSS and SDSR processes⁴⁷⁵ is a significant departure from practical models of Capability Based Planning.⁴⁷⁶ Debate at this stage of the SDSR process was intensely political given that a number of identified capability gaps will remain in place for 10 years at least.⁴⁷⁷

- **Affordable Capability Development Plan**

An unfunded deficit of GBP38bn over the forthcoming 10 years was not a great place for the UK MoD to start.⁴⁷⁸ Subsequently the focus on fiscal constraints led to allegations by the Defence Select Committee that the SDSR (Defence) process lacked intellectual honesty.⁴⁷⁹ Nonetheless, it could be that the original deficit was a creation of ‘bottom up’ processes in

⁴⁷⁰ “Defence Select Committee - August 2011.”

⁴⁷¹ UK Government, *SDSR 2010*, 19.

⁴⁷² *Ibid.* 20.

⁴⁷³ “Global Combat Ship - July 2011,” accessed May 2nd, 2013, <http://www.naval-technology.com/projects/global-combat-ship-gcs-programme/>

⁴⁷⁴ “Spending Review”, UK Government, accessed May 2nd, 2013, http://www.hm-treasury.gov.uk/spend_index.htm

⁴⁷⁵ Chalmers, M., “Unbalancing the Force – Prospects for UK Defence after the SDSR”, *RUSI - Future Defence Review*, WP9-November (2010): 2.

⁴⁷⁶ “Capability Based Planning,” 4.

⁴⁷⁷ “Defence Select Committee - August 2011,” accessed May 6th, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>.

⁴⁷⁸ UK Government, *SDSR 2010*, 15.

⁴⁷⁹ “Defence Select Committee – August 2011.”

place prior to SDSR. Service led demands were eventually reconciled by a centralised capability based process that, of necessity, required some extremely tough trade-off decisions – a core aspect of the TTCP model.

SDSR (Defence) & Ministry of Defence Governance structures

The formation of a UK National Security Council was one of several major reforms involving the MoD's governance structures that coincided with SDSR. A number of these have aspects of interest to New Zealand due to their concentration on acquisition and capability:

1. Cabinet Office: SDSR Implementation Board ⁴⁸⁰

A cross-government group charged with monitoring the implementation of the SDSR, the Implementation Board includes the Secretary of Defence who is held accountable for all aspects relating to the UK Military. One of the key aims of the board is to foster pan-governmental collaboration.

2. Defence Board ⁴⁸¹

Following the Lord Levene report into MoD structures, several significant changes have been introduced to the Defence Board.⁴⁸² The most obvious change is that Service Chiefs have a much reduced influence over resource allocation decisions. Changes include:

- Reduced size and changed composition. A smaller Defence Board chaired by the Defence Secretary has the aim of strengthened top level decision making;
- Removal of service chiefs from the Defence Board. The Chief of Defence Staff is the sole military 'voice' on the Board;
- Focus on making high level 'balance of investment' decisions, set strategic direction and a strong corporate framework;
- Strengthen financial and performance management throughout the MoD to ensure that future plans are affordable;
- Create a '4 star' led Joint Forces Command, to strengthen the focus on joint enablers and on joint warfare development;

⁴⁸⁰ UK Government, *SDSR 2010*, NSS35.

⁴⁸¹ "Defence Select Committee - August 2011," 46, 47, accessed May 6th, 2013, www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/163904.htm

⁴⁸² "Defence Secretary unveils blueprint for Defence Reform", UK Ministry of Defence, accessed May 1st, 2013, <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/DefenceSecretaryUnveilsBlueprintForDefenceReform.htm>

- Create a single, coherent Defence Infrastructure and Defence Business Services organisations, to ensure enabling services are delivered efficiently, effectively and professionally.

3. Major Project Review Board ⁴⁸³

- The Board is chaired by the Defence Secretary and receives quarterly updates on the MoD's major programmes to ensure that they are on time and within budget. This began with the 20 biggest projects by value, expanding to the 50 biggest projects. "Any project that the Board decided was failing would be publicly 'named and shamed'." ⁴⁸⁴
- Working with the UK Defence Infrastructure Organisation 'whole of life' cost analysis forms a central focus for the Major Project Review Board. ⁴⁸⁵

4. Defence Reform Unit ⁴⁸⁶

- To oversee implementation of SDSR (Defence) recommendations, a Defence Reform Unit was established within the MoD to implement any structural/organisational changes including:
 - a. Structural reform to reorganise the MoD into three pillars: Strategy and Policy, Armed Forces, and Procurement and Estates; and
 - b. A leaner and less centralised organisation, combined with devolved processes which carry greater accountability and transparency.

NSS and Strategic Defence & Security Review – Critique

Positives

1. NSS and SDSR used a 'top down'/'whole of government' approach

The NSS and SDSR process has the clear intent of fostering 'whole of government' solutions and achieving consistency between the strategic environment and defence capabilities. Although the process appears to have been 'blown off course' by a number of externalities, vested interests and poor execution, the upper levels of the process were thorough, well resourced and wide

⁴⁸³"MoD's Major Projects Review Board stands up", Ministry of Defence, 13 June 2011, accessed May 2nd, 2013 <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/ModsMajorProjectsReviewBoardStandsUp.htm>

⁴⁸⁴ *Ibid.*

⁴⁸⁵ "UK Defence Infrastructure Organisation. June 2011," accessed May 3rd, 2013, www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/EstateAndSustainableDevelopment/SustainableProcurementsOnTheModEstate.htm

⁴⁸⁶ *Ibid.*

ranging. Strategic priorities were clearly communicated and judging from submissions to the Defence select committee, few found fault with its intent.⁴⁸⁷ Furthermore, the 2010 NSS considered global trends as far ahead as 30 years, an appropriate timescale given the life of defence assets.⁴⁸⁸

2. Supportive administrative structures

The Lord Levene report into MoD processes has seen a greater degree of accountability introduced to the procurement of major platforms and an improved focus on the link between strategic analysis and capability.⁴⁸⁹ Whilst the Defence Board brief makes no explicit mention of Capability Based Planning, references to affordability, strategic direction and 'joint enablers' suggest the presence of a CBP framework similar to that of the TTCP.⁴⁹⁰ The formation of a specialised major project review unit provides further support as does the focus on 'whole of life' costs. Nevertheless, the absence of external specialists on the Defence Board did elicit some adverse comment at Defence Select Committee level.⁴⁹¹

3. Scenarios have tightly defined deployment periods

Scenarios in the SDSR include tightly defined deployment time frames, a key determinant of capability and resourcing requirements.⁴⁹²

4. Renewed focus on essential enablers

The acronym TEPIDOIL, describing key capability enablers, is well established amongst UK forces.⁴⁹³ However, it appears that the importance of key capability enablers in defence planning has lessened in recent years. For example, in response to SDSR, a major study commenced in 2011 to identify ways to restore the coherence of the UK's TEPIDOIL model and its importance in defence planning.⁴⁹⁴

⁴⁸⁷ "Defence Select Committee - August 2011," 116.

⁴⁸⁸ UK Government. *Global Strategic Trends - Out to 2040, and Future Character of Conflict* (London: UKMoD, 2010).

⁴⁸⁹ "Lord Levene report, 2011," UK Ministry of Defence, accessed May 2nd, 2013, [http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/DefenceSecretaryUnveilsBlue
printForDefenceReform.htm](http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/DefenceSecretaryUnveilsBlueprintForDefenceReform.htm)

⁴⁹⁰ "Defence Select Committee - August 2011," 46, 47.

⁴⁹¹ *Ibid.*

⁴⁹² "Defence Select Committee - August 2011," 163, accessed May 1st, 2013
<http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>

⁴⁹³ Kerr, C. "A Framework for Strategic Military Capabilities in Defense Transformation" (paper presented at 11th Command and Control Research Symposium, Cambridge, UK, 2003), 7.

⁴⁹⁴ "Coherence Across DLOD", Jacobs Sula, accessed May 7th, 2013,
http://www.jacobssula.co.uk/coherence?parent=systems_engineering

NSS and Strategic Defence & Security Review – Critique

Negatives

1. The SDSR (Defence) was driven by fiscal not strategic imperatives

As submissions to the Defence Select committee suggest, the involvement of Treasury and the Cabinet Office from the very beginnings of SDSR, a concurrent cost review and well publicised GBP38bn ‘defence deficit,’ were all highly influential factors. As a result, several trade-off decisions appear to contradict the strategic guidance provided by the NSS. For example, Professor Martin Edmonds, University of Lancaster, criticises SDSR on the basis that it “was not framed with reference to top down/capability led decisions. Rather it was an amalgam of both ‘top down’ (NSS led) and ‘bottom up’ (Afghanistan). The result was hopeless incoherency, made worse by having to meet predetermined cost savings.”⁴⁹⁵ Others agree. Professor Chalmers from RUSI is uncertain how decisions flowed from the NSS - "... in the discussion of the aircraft carrier decision, there was an explicit difference drawn out between the threat environment that we face in the next 10 years, which doesn't require carrier-based aircraft, and what we anticipate after that, which does. But that isn't related back to analysis in the NSS.”⁴⁹⁶ Further inconsistencies between the NSS and the decision to dispose of the Nimrod are apparent. The Nimrod appears to meet eight of 15 NSS strategic imperatives, more than any other capability, yet it was cancelled.⁴⁹⁷

Such methodological confusion has led Professor Gwyn Prins of London School of Economics to advocate a return to established methodological models whereby strategic analysis is undertaken without consideration of financial constraints. Strategic analysis “should be provided to the NSC, not conducted by the NSC, and only when this is complete should financial considerations be introduced.”⁴⁹⁸ This process would “permit the Cabinet to inform more fully the inevitable choices about the allocation of tax payer money.”⁴⁹⁹

⁴⁹⁵ Edmonds, A. Defence Select Committee submission - August 2011, 136, accessed May 7th, 2013, <http://www.scribd.com/doc/52675997>

⁴⁹⁶ Chalmers, G. Defence Select Committee submission - August 2011, 135, accessed May 7th, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>.

⁴⁹⁷ Wing Commander Brookes. Defence Select Committee submission - August 2011,.134, accessed May 8th, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>.

⁴⁹⁸ Prins, G. “The British Way of Strategy-Making,” *RUSI – Occasional Paper*, October (2011): 1, accessed May 5th, 2013, http://www.rusi.org/downloads/assets/The_British_Way_of_Strategy_Making.pdf

⁴⁹⁹ *Ibid.* 17.

2. Scenarios lack specificity and fail to consider concurrency

One of the criticisms of the SDSR made by academics such as Tim Edmunds is that the concept of risk is poorly defined and therefore open to multiple interpretations.⁵⁰⁰ As a consequence, the Defence Select committee suggests that scenarios do not consider the need “for sufficient contingency to deal with the unexpected” and that the consequent Defence Planning Assumptions (DPA) flowing from this, are mere “tools” and not “fixed operational plans.”⁵⁰¹

3. Fiscal allocation over 10 years not stipulated or guaranteed

Whilst the UK Government provided fiscal *guidance* over 10 years, it did not provide fiscal *certainty*.⁵⁰² This is inconsistent with the long lead times and asset lives of military equipment. For example, House of Commons select committee members suggest resourcing numbers within the SDSR were an aspiration, not firm policy - “When developing the NSS in future years, the Government should identify with greater clarity the resources required and available to achieve the desired outcomes within the framework of the national security tasks. This analysis would enable the SDSR to take informed resourcing decisions.”⁵⁰³

4. SDSR heavily influenced by current deployments not future deployments

The Afghanistan commitment was the only ‘non negotiable’ precondition of SDSR.⁵⁰⁴ This is entirely understandable. However, contemporary priorities such as this undermine the integrity of SDSR as a long term capability based planning document. Consequently, this implies the SDSR process was at least partly about fighting today’s conflicts and not preparing for the conflicts of tomorrow. As a result, the NSS/SDSR process has been criticised for lacking true strategic oversight that can only be corrected by independent analysis, free of “preordained constraints.”⁵⁰⁵

5. NSS lacks focus due to confused roles for military and civil arms

The NSS methodology, which has a very broad focus, has been criticised for muddling military and civil roles in the higher echelons of defence. This has seemingly led to an imprecise

⁵⁰⁰ Edmunds, T. “British civil-military relations and the problem of risk,” *International Affairs*, 88 (2012): 1, accessed May 3rd, 2013, http://www.chathamhouse.org/sites/default/files/public/International%20Affairs/2012/88_2/88_2edmunds.pdf

⁵⁰¹ “Defence Select Committee - August 2011”, 98.99, modified May 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/163904>.

⁵⁰² UK Government, *SDSR 2010*, 19.

⁵⁰³ “Defence Select Committee – August 2011,” accessed May 7th, 2013 <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/1639.pdf>

⁵⁰⁴ UK Government, *SDSR 2010*, 3.

⁵⁰⁵ Prins, G. London School of Economics. Oct. 2011. Comment on Treasury involvement in SDSR process. <http://blogs.lse.ac.uk/politicsandpolicy/archives/17595>

understanding of the complementary roles of grand strategy, operational strategy and government policy.⁵⁰⁶

6. No formal consideration of alternative operational solutions

The 2010 SDSR shows a quite noticeable absence of cross service discussion about alternatives to existing capability sets. This is a finding also noted by the House of Commons Select Committee which criticised SDSR for failing to consider how capability gaps might be solved through alternative means.⁵⁰⁷

7. Poorly defined role for defence technologists

Although the UK has a very large and successful military technology industry, this sector does not appear to have been formally involved in the analysis phases of the SDSR. For example, the document does not define how the DSTL was involved. The relative lack of technological input suggests the review was either rushed or that short term funding pressures discouraged consideration of forthcoming/new generation technology and consequent impact on long term capability. It may be that the DSTL is more oriented toward hardware development, as opposed to the intangible impact of technology on policy, planning and the strategic environment.

8. Capability analysis – dominated by what resources are available not the list of likely tasks

Whilst the MoD uses relatively imprecise/generic scenario analysis (at least publically), a bigger issue appears to be the way in which the defence budget determined the capabilities available. This runs counter to the TTCP model, whereby capability requirements are first referenced to the government's strategic priorities and then trade-off options are assessed with reference to available resources.⁵⁰⁸ The 'Cart before the Horse' approach of SDSR is a significant departure from the intent of holistic Capability Based Planning models such as the TTCP's.

9. Limited detail regarding cost/benefit analysis tools

The SDSR does not include an analysis of the strategic risks to be created by favoured decisions. This was left to the Defence Select Committee.⁵⁰⁹ Underdeveloped prioritisation tools probably made an already fraught process even more so. Widely accepted and objective processes tend to generate greater 'buy in' from stakeholders and contribute to greater cohesion.

⁵⁰⁶ *ibid.*

⁵⁰⁷ "Defence Select Committee - August 2011," 125.

⁵⁰⁸ "Capability Based Planning," 4.

⁵⁰⁹ "Defence Select Committee - August 2011" 15-18, accessed May 2nd, 2013, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/163904.htm>

10. Inter-service rivalries/fractious leadership

Judging from both public statements and select committee submissions the SDSR process pitted service chiefs against each other, as they jostled to retain as many of their own service capabilities as possible.⁵¹⁰ This environment appears to have similarities with that seen in New Zealand during the early 2000's.⁵¹¹ Just how this environment took hold in the UK, probably reflects the introduction of the 'top down'/holistic approach that replaced the previous 'bottom up' methodology. As a result, 'pet projects' were cancelled or whole capability sets removed as prioritisation decisions were made. This equates to a huge cultural change which created enormous internal discord. Making the process all the more painful, was the apparent lack of stakeholder buy in and a feeling amongst service chiefs that the military had limited chance for input.⁵¹²

11. SDSR (Defence) did not consider DLoD (Defence Lines of Development)

The SDSR did not reveal whether or not it considered the set of generic elements that have to be brought together to generate a defence capability. Although the UK MoD's capability acronym, "TEPIOIL," is a well embedded concept, the SDSR did not overtly consider the diverse long term structures and skills required to deliver desired/identified capabilities.⁵¹³

Conclusion

It is clear that the NSS and SDSR processes are practical examples of Capability Based Planning. Both are closely aligned with the key tenants of the TTCP's CBP model. Importantly, analysis structures are sequential whilst the strategic analysis upon which subsequent analysis is framed appears well considered and suitably long term. Likewise, the Military Task List that flows from this assessment seems consistent with higher order analysis. In another positive, changes to the Defence Board appear well considered and mirror many of the governance structures in New Zealand. Furthermore, the formation of a Major Project Review Board appears to be a positive step as is the renewed focus on key capability enablers albeit that these were not detailed in SDSR.

However, most of the positives of SDSR rest at the top levels of the process. Lower level outputs in 2010 were fraught with inconsistencies, incoherency and inter-service rivalries. The foremost criticism is that fiscal, not strategic considerations, dominated the process. This was not helped by

⁵¹⁰ *Ibid.* 28.

⁵¹¹ Greener, P. *Timing Is Everything- The Politics and Processes of New Zealand Defence Acquisition Decision Making*, 141.

⁵¹² "Defence Select Committee - August 2011," 15-17.

⁵¹³ Kirkpatrick. "The Next UK Defence Review Must Do Better."

the fact HM Treasury occupied a senior role within the SDSR process and that a cost review was conducted concurrently. At the same time, the lack of long term fiscal certainty made trade-off decisions even more problematic as did the lack of an objective methodology to assess funding priorities. Instructively, two key decisions are completely inconsistent with the NSS – aircraft carriers (retained) and Nimrod maritime surveillance (cancelled).

As one select committee submission claimed:

*“Forget all the strategic stuff: there was a haggle at the last weekend (of the process), which was utterly unacceptable in terms of the national strategic requirements ... the start point was not strategic, it was how to reduce a deficit of GBP36bn.”*⁵¹⁴

Nevertheless, the NSS and SDSR (Defence) did make one critical achievement. As the UK Secretary of State asserts - "for the first time in a generation, the MoD will have brought its plans and budget broadly into balance, allowing it to plan with confidence for the delivery of the future equipment programme."⁵¹⁵ This looks like an oversell of the methodology employed. However, a new capability planning and assessment paradigm is now firmly embedded in the UK defence establishment and it will be interesting to see how this evolves over time. For now, one observation seems particularly accurate – whilst the 2010 SDSR and NSS processes were capability based they were far from a textbook example of Capability Based Planning.

⁵¹⁴ “Defence Select Committee - August 2011.”

⁵¹⁵ “Defence Equipment Budget Rises as Future Force Takes Shape,” UK Ministry of Defence, July 2011, accessed May 5th, 2013, <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/DefenceEquipmentBudgetRisesAsFutureForceTakesShape.htm>

Chapter 10: Defence Planning in Singapore

Introduction

Independent since 1965, Singapore is a youthful country. So new in fact, that the Ministry of Defence was established as recently as 1989.⁵¹⁶ However, it would be wrong to assume that Singapore's young age means that its defence footprint is underdeveloped. In fact, the Singapore Armed Forces (SAF) are comparatively large and well equipped whilst Singapore's Airforce has been described as Asia's "most advanced,"⁵¹⁷ whilst the Army, based around three divisions, supports a full suite of ground based capabilities.⁵¹⁸ The same applies to Singapore's Navy. Naval assets include stealth frigates, corvettes and submarines along with advanced land based missiles which, taken collectively, have been described as the "most advanced naval force in South East Asia."⁵¹⁹

Estimates are that the SAF's standing force is around 70,000 personnel with a further 350,000 reservists available at short notice, an extremely high number given Singapore's resident population is around 4.5m.⁵²⁰ Males aged 18 or over must complete two years of compulsory military training and remain available for service until age 49.⁵²¹ At any one time between 50% and 80% of SAF personnel are conscripts.⁵²² Clearly a force of such size and sophistication comes at a cost. The World Bank estimates that Singapore spent circa US\$10bn or approximately 3.6% of GDP on defence in 2012, as much in US\$ terms as its much larger near neighbours Malaysia and Indonesia combined.⁵²³ World Bank data also indicates only Israel spends more on defence on a per capita basis.⁵²⁴

As this brief introduction suggests, it would be difficult to understate Singapore's commitment to defence.

⁵¹⁶ Huxley, T. *Defending the Lion City* (Leonards, N.S.W: Allen & Unwin 2000), 16.

⁵¹⁷ Vreeken, J., "Singapore's Burgeoning Armed Forces – A Steadying Force," *The international Political Review* February (2012), accessed April 3rd, 2013, <http://www.theinternationalpoliticalreview.com/singapores-burgeoning-armed-forces-a-steadying-force/>

⁵¹⁸ "Organisational Structure", Ministry of Defence Singapore, accessed April 12th, 2013,

http://www.mindef.gov.sg/imindef/mindef_websites/atozlistings/army/About_Us/Org_Structure.html

⁵¹⁹ Kaplan, G. "The Republic of Singapore Navy," *The Navy Magazine - Navy League of Australia*, accessed April 18th, 2013, http://navyleag.customer.netspace.net.au/fc_07ros.htm

⁵²⁰ "Singapore Military Strength", Global Firepower, accessed April 11th, 2013,

http://www.globalfirepower.com/country-military-strength-detail.asp?country_id=Singapore

⁵²¹ "Enlistment Act", Singapore Government, Chap. 93, accessed April 2nd, 2013.

<http://statutes.agc.gov.sg/aol/search/display/view.w3p?page=0;query=DocId%3A7c7b1aab-8403-4443-b322-0cba08be5d45%20%20Status%3Ainforce%20Depth%3A0;rec=0>

⁵²² Tan, A.T.H., "Singapore's Defence: Capabilities, Trends and Implications," *Contemporary Southeast Asia* 21, No. 3 (1999): 4.

⁵²³ "Military Expenditure as a % of GDP," World Bank, accessed 30th January, 2013,

<http://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS>

⁵²⁴ *Ibid.*

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“Whatever you can’t defend, does not belong to you.”⁵²⁵ Meng Yu, C.

The defence policy of any state is a subset of diverse variables such as geography, history, politics, political system and state ideology. This is no different in the case of Singapore. Since independence in 1965, defence policy in Singapore has been firmly based on three concepts:

- a. Deterrence;⁵²⁶
- b. Diplomacy;⁵²⁷
- c. Public order.⁵²⁸

Deterrence appears to reflect both Singapore’s lack of strategic depth as well as pivotal historical events such as the capture of Singapore by the Japanese in 1942 and its subsequent occupation.⁵²⁹ Furthermore, the role of Singapore as a crucial bastion of the British Empire meant that a newly independent Singapore inherited a strong sense of military awareness. This partly explains the substantial commitment to defence spending outlined in the introductory paragraphs and as such defence planning in Singapore appears to reflect a strongly realist ideology. With this in mind, the history of defence policy in Singapore seems heavily oriented towards the thoughts and writings of classical realist Kautilya who expressed particular concerns with belligerent neighbours.⁵³⁰

In this regard, Malaysia and Indonesia are both highly relevant to Singapore. Whilst neither state has actually attacked Singapore, both neighbours have shaped the ideology that underlies Singapore’s defence planning and policy posture. *Konfrontasi* (1962-66) and Singapore’s controversial secession from the Malaysian Federation left her with an indelible feeling of vulnerability.⁵³¹ This sensitivity is not uncommon to new states. However, Singapore has been the subject of both state and non state aggression. The communist insurgency on the Malaysian peninsula in the 1960’s further reinforced Singapore’s sense of unease.⁵³²

⁵²⁵ Meng Yu, C. “Quotation” in *Defending Singapore in the 21st Century*, 42.

⁵²⁶ “Singapore’s Defense Policy: Essential Or Excessive?” 7, Yi-Jin Lee, Major, accessed 28th January, 2013, http://www.airpower.au.af.mil/apjinternational/apj-c/2011/2011-1/2011_1_11_singapore-E.pdf.

⁵²⁷ Huxley, T., *Defending the Lion City*, 24.

⁵²⁸ Vasu, N and Loo B. “National Security and Singapore: An Assessment” in *Management of Success – Singapore Revisited*, edited by Terrence Chong (Singapore: ISEAS Publishing 2010), 467.

⁵²⁹ Huxley, T., *Defending the Lion City*, vi.

⁵³⁰ Gautam, P.K., “Relevance of Kautilya’s Arthasastra,” *Strategic Analysis*, Vol. 37, 1 (2013): 21-28, accessed 4th April, 2013, http://www.idsa.in/strategicanalysis/37_1/RelevanceofKautilyasArthasastra

⁵³¹ Tan, A., “Singapore’s Defence Policy in the new Millennium,” *Strategic and Defence Studies Centre - Working Paper 322* (1998): 2.

⁵³² Crosby, R. *New Zealand Special Air Service- The First 50 Years* (Auckland: Viking Press, 2009), 118.

The Malayan Emergency, as it became known, reinforces the extent to which the history of defence planning in Singapore cannot completely ignore the influence of other states and the former colonial power. Early defence planning drew heavily upon Israel's policies of forward defence and deterrence whilst the UK was, and still is, involved in the region through the Five Power Defence Arrangement (FPDA).⁵³³ Importantly, the UK, along with Australia and New Zealand, was heavily involved in the battle to confront the communist insurgency whilst the two former states had substantial military bases on Singapore Island for many years thereafter as part of a Commonwealth Strategic Reserve.⁵³⁴ Nonetheless, it appears to have taken many years for the positive role of British Armed Forces in the creation of both the SAF and Singaporean defence policy to enter discussion.

The influence of the UK in the creation of Singapore's defence policy culture has gained greater acceptance in recent years, a point now stressed by some officers in the SAF. For example, CPT Lawrence Leong writing in the SAF's journal *Pointer* in 2011 believes the UK, which provided the "anchor for the Five Power Defence Arrangement," was critical to the successful formation of the three individual SAF services themselves.⁵³⁵ Leong also suggests that the historical reluctance to acknowledge colonial influences in Singaporean defence culture reflects the uneasiness Singaporeans felt towards colonialism in the years immediately following independence. Furthermore, the government of Lee Kuan Yew made strenuous efforts in the early years of independence to build a Singaporean sense of nationhood and self reliance. As such, the concept of nationhood and defence was central to the statist policies of Lee's government. Consequently, Lee's commitment to defence is entirely consistent with this ideology. However, Singapore's commitment to deterrence is matched by a corresponding belief in defence diplomacy. In addition to member states of FPDA, strong relations exist with the militaries of Indonesia, Israel, The United States and others. Writing in his 2000 analysis of the SAF, Tim Huxley refers to Singaporean defence diplomacy as not only an attempt to "encourage a favourable regional balance of power but also to maintain an open global and regional trading regime."⁵³⁶

The tie between deterrence and defence diplomacy is close. However, it is also noteworthy that deterrence and public order, the third policy pillar, are essentially stable mates within a statist ideology. Singapore is an activist state where government is at the very core of society. This is entirely consistent with both strong defence and public order. This owes much to the "narrative of vulnerability" espoused by Lee that stressed the need for public order so as to ensure that the

⁵³³ Tan, "Singapore's Defence Policy in the new Millennium," 5.

⁵³⁴ Huxley, T., *Defending the Lion City*, 3.

⁵³⁵ Leong, L CPT. SAFTI Military Institute, "Rethinking The British Legacy - British Withdrawal And Origins Of The Singapore Armed Forces, 1966 - 1971," *Pointer*, Vol. 37 No.2 (2011): 1.

⁵³⁶ Huxley, T., *Defending the Lion City*, 24.

Singaporean state survived in its early years. As part of this, citizens were expected to sacrifice some degree of personal freedom in order to ensure the survival of the state and society in a broader sense. Defence policies such as compulsory military training are a direct reflection of this Realist ideology. Likewise, as Vasu and Loo emphasise, defence decision making in Singapore is shrouded in secrecy and based around an internal governmental elite,⁵³⁷ a state of affairs they also regard as consistent with a statist ideology.⁵³⁸

This approach was embodied in what Singaporean terms the “First Generation” of defence policy lasting from independence through to the 1980’s. Heavily defensive in its approach, “basic defence” as it was also known, placed the defence of Singapore as its foremost priority.⁵³⁹ Based around deterrence and forward defence, the SAF structure was firmly oriented towards ensuring Singaporean sovereignty.⁵⁴⁰ Such an approach was both a direct reflection of the Cold War and the unpredictable strategic environment in the South East Asian region described in earlier paragraphs. By the 1980’s the region was no less volatile. However, Singapore was feeling more secure in itself and this gave rise to what the Singaporean Defence Ministry terms the “Second Generation” defence policy. Aimed at modernising its assets and military doctrine, defence policy also became slightly less insular. For example, the SAF began to operate outside Singapore for the first time albeit in close partnership with like minded states and members of the FPDA. Other policies included the creation of a joint staff to prioritise and oversee new capabilities and ensure integration into the SAF as a whole.

Despite subtle changes such as this, the “Realist precepts” fostered by Lee Kuan Yew, remain influential in Singaporean defence policy.⁵⁴¹ A ‘whole of government’ approach to defence currently applies and is named “Total Defence.”⁵⁴² First developed by the Swiss and Swedes, “Total Defence” shows how a small, vulnerable state can leverage the multiplier effect of its peoples, industries and other agencies of government to create a much larger defence footprint than would otherwise be the case.⁵⁴³ This is embodied in what Singapore refers to as the “Third Generation SAF.”⁵⁴⁴ However,

⁵³⁷ Vasu, N and Loo B, “National Security and Singapore: An Assessment,” 474.

⁵³⁸ *Ibid.*

⁵³⁹ LG Neo Kian Hong, Chief of Defence Force, SAF, “A Reader for Leadership Development,” *POINTER*, SAFTI Military Institute, Monograph No. 9 (2012): 9.

⁵⁴⁰ *Ibid.* 29.

⁵⁴¹ Pye, L.W., “Review of “The Singapore Story: Memoirs of Lee Kuan Yew,” *Foreign Affairs*, March/April, (1999), accessed April 8th, 2013. <http://www.foreignaffairs.com/articles/54766/lucian-w-pye/the-singapore-story-memoirs-of-lee-kuan-yew>

⁵⁴² “Total Defence,” Government of Singapore, accessed April 2nd, 2013, http://www.totaldefence.sg/imindef/mindef_websites/topics/totaldefence/home.html

⁵⁴³ “What is Total Defence,” Government of Singapore, accessed April 2nd, 2013, http://www.totaldefence.sg/imindef/mindef_websites/topics/totaldefence/about_td.html

as with the two preceding policy paradigms, the concept also reflects the influence of external events. In this regard, the terror attacks of 9/11 were pivotal and resulted in a sharp reappraisal of defence policy in 2004 embodied in a new national security strategy named “The Fight Against Terror.”⁵⁴⁵ This document, which includes reference to nonconventional threats such as terrorism, seeks to develop closer links with a broad range of other Government agencies. As part of this, the SAF has since 2004 sought to provide a “networked and cohesive force, culturally as well as practically.”⁵⁴⁶ For example, officers from all three service arms attend a single institution to complete initial officer training as part of an attempt to create a matrixed “learning organisation” that “reaches across silos.”⁵⁴⁷ The SAF also claims to be configured as one “fighting system” and that this creates a multiplier effect to create a combat impact of disproportionate size.⁵⁴⁸

As can be seen, Singaporean defence policy continues to evolve. However, it would be a mistake to suggest that contemporary defence policy is anything but a modern extension of the core concepts of deterrence and public order that have provided the ideological foundations since 1965. Deterrence remains at the heart of Singaporean defence policy.⁵⁴⁹ Importantly, the mission statement of both the SAF and Singaporean Ministry of Defence remains to “enhance Singapore’s peace and security through deterrence and diplomacy and should these fail, to secure a swift and decisive victory over an aggressor.”⁵⁵⁰ Although, it has been suggested that the focus has moved away from deterrence towards using defence as a way to increase Singapore’s influence in the world, offshore commitments have been relatively minor, certainly in the context of the SAF’s size.⁵⁵¹ Whilst SAF units have deployed overseas, Iraq included, troop numbers have remained comparatively small and have involved few, if any, combat roles.⁵⁵² Nevertheless, as academic Michael Singapore of London School of Economics and Political Science observes – “Singapore is perhaps the most densely defended state anywhere.”⁵⁵³

⁵⁴⁴ “About the Third Generation SAF,” Ministry of Defence Singapore, accessed April 4th, 2013 http://www.mindef.gov.sg/content/imindef/mindef_websites/topics/3g/home.html

⁵⁴⁵ Republic of Singapore, Ministry of Defence. *The Fight Against Terror – Singapore’s National Security Strategy* (Singapore: National Security Co-ordination Centre, 2004), 1.

⁵⁴⁶ LG Neo Kian Hong, Chief of Defence Force, SAF, “A Reader for Leadership Development,” v.

⁵⁴⁷ *Ibid.* 10.

⁵⁴⁸ *Ibid.*

⁵⁴⁹ *Ibid.* 51.

⁵⁵⁰ *Ibid.* 7.

⁵⁵¹ *Ibid.* 22.

⁵⁵² “Singapore to send 192 personnel to Iraq,” *Agence France Press*, October 23rd, 2003, accessed 5th February 2013, <http://www.singapore-window.org/sw03/031027af.htm>.

⁵⁵³ Huxley, T., *Defending the Lion City*, v.

Singapore's unique strategic landscape: influence on defence policy

The most obvious influence on Singapore's strategic posture is the country's small geographic size and consequent lack of strategic depth. To put this in context, the size of Singapore (714sq km) is only slightly greater than New Zealand's Lake Taupo, at 616sq km.⁵⁵⁴ This vulnerability, cruelly exposed by the Japanese invasion of 1942, explains Singapore's policy preferences of forward defence, deterrence and rapid deployment.⁵⁵⁵ Geographical influences also include Singapore's close proximity to the choke point of the Malacca Strait, Asia's foremost oil transit route, through which an estimated 15 million barrels flows each day.⁵⁵⁶ Free Sea Lanes of Communication (SLOC) are also vital to Singapore's wealth creation machinery and trade with an estimated 7% of GDP sourced from the shipping industry alone which employs 150,000 Singaporeans.⁵⁵⁷ It is also notable that Singapore continues to import water across the Straits of Johore from Malaysia.⁵⁵⁸

Singapore's defence policy is influenced by strategic considerations that extend beyond the geographical. The country's population is a blend of Chinese and Malay with the Chinese group made up of Chinese (Anglo) and Chinese (China). This mixture can be racially unstable and the Malaysian peninsula experienced periods of racial discord, most notably in May 1969 when over 2000 people died in race riots between Chinese and native Malays.⁵⁵⁹ Such animosity extended into the political spectrum with deep acrimony between Lee Kuan Yew's *People's Action Party* (PAP) and the *Malay Nationalist Organisation* (UMNO).⁵⁶⁰ Such divisions go some way to explaining the emergence of Singapore as a state but also account for the realist orientation of Singapore's early leadership.⁵⁶¹ Similarly, Indonesia, which has "never ceased to be a security concern for Singapore",⁵⁶² and Chinese communist incursions in the region, all played a role in shaping the strategic perceptions of Singaporean policy makers.⁵⁶³ Singapore's vulnerable early years also account for the strong policy

⁵⁵⁴ Republic of Singapore, Singapore Department of Statistics. *Year book of Statistics Singapore 2012* (Republic of Singapore. 2012), 2.0, Cussen, L., *Lake Taupo*, in Notes on the Physiography and Geology of the King Country, *Transactions of the Royal Society of New Zealand*, 20.

⁵⁵⁵ Huxley, T., *Defending the Lion City*, xix.

⁵⁵⁶ "World Oil Transit Choke Points," US Energy Information Agency, August 22nd, 2012, Washington, accessed April 12th, 2013. http://www.eia.gov/emeu/cabs/world_oil_transit_chokepoints/background.html

⁵⁵⁷ "The Shipping Industry in Singapore," Shipping Singapore COO, Hong Kong, accessed April 8th, 2013. <http://www.coosupport.com/shipping/singapore/overview>

⁵⁵⁸ "The Singapore Water Story," PUB, Singapore Government, accessed 17th August 2012. <http://www.pub.gov.sg/water/Pages/singaporewaterstory.aspx>

⁵⁵⁹ Tan, "Singapore's Defence Policy in the new Millennium," 2.

⁵⁶⁰ *Ibid.*

⁵⁶¹ Pye, "The Singapore Story: Memoirs of Lee Kuan Yew."

⁵⁶² Huxley, T., "Defending the Lion City," 50.

⁵⁶³ Inglis., F. *The Cruel Peace – living Through The Cold War* (London, Aurum Press, 1991): 426.

commitment to alliances such as the FPDA, defence relations with numerous other states and contributions to United Nations.

Current defence planning paradigm in Singapore

The most recent practical example of defence planning in Singapore was conducted in 2004. Named “The Fight Against Terror”, the 9/11 attacks clearly resonate. Of equal importance, the review also presented Singapore’s first integrated national security strategy albeit primarily focused on confronting terrorism.⁵⁶⁴ The ideology of “Total Defence” is strongly apparent.⁵⁶⁵ However, Singapore’s approach to defence planning has also drawn criticism for its tendency to approach defence planning from the perspective of ‘What’ not ‘How’. Writing in the April 2012 edition of *The Diplomat*, Hinata-Yamaguchi contends that Singapore has an excessive reliance on “technology based planning.”⁵⁶⁶ This strongly implies a focus on high technology asset procurement in preference to operational and tactical deployability. If analysts such as Hinata-Yamaguchi are correct, defence planning in Singapore is certainly at odds with the TTCP model. Assessment as to the merits of such a viewpoint requires a critique of Singapore’s most recent defence review (2004) to establish alignment with the methodological boundaries of the TTCP’s Capability Based Planning model.

- **Government Guidance**

The TTCP defence planning template requires the formulation of “High Level, strategic analysis from Government” as an essential foundation for all subsequent defence planning.⁵⁶⁷ In the case of Singapore, the 2004 National Security Strategy (NSS) acts in this capacity, providing the strategic framing needed for subsequent analysis.⁵⁶⁸ This approach has strong commonality with the first stage of the TTCP’s defence planning template. In practical terms, the 2004 review presents trans-national terrorism as the most pressing security issue facing the City State.⁵⁶⁹ This reflects the same macro, top down approach that has shaped strategic perceptions in Singapore since 1965. This methodology, involving both threat and strategic assessments, was also core to the 2000 Defence Review (Defending

⁵⁶⁴ Republic of Singapore, Ministry of Defence, *The Fight Against Terror – Singapore’s National Security Strategy 2004*, 1.

⁵⁶⁵ *Ibid.*

⁵⁶⁶ Hinata-Yamaguchi, R., “Singapore’s Military Modernisation,” *The Diplomat*, April 27th 2012, accessed 29th January 2013. <http://thediplomat.com/new-leaders-forum/2012/04/27/singapore%E2%80%99s-military-modernization/>

⁵⁶⁷ “Guide to Capability-Based Planning,” 7.

⁵⁶⁸ Republic of Singapore, Ministry of Defence, *The Fight Against Terror- Singapore’s National Security Strategy 2004*, 1.

⁵⁶⁹ *Ibid.* 6.

Singapore in the 21st Century).⁵⁷⁰ Of note, a small number of strategic factors remain highly influential in the defence reviews of 2000 and 2004, most importantly Singapore's small size, both geographically and in relation to neighbouring states.⁵⁷¹ Consequently, Singapore is seen as being particularly vulnerable to disruptive non state forces such as terrorism.⁵⁷² Finally, it is notable that the Singaporean Government did not seek public submissions with regards the 2000 and 2004 defence reviews, an approach clearly at odds with TTCP member states.⁵⁷³

- **Defence Priorities**

Stage two of the TTCP template involves a statement of priority defence objectives.⁵⁷⁴ As preceding sections indicate, the history of defence planning in Singapore indicates that the defence priorities of Singapore have, since independence, been heavily focused on deterrence in the form of forward defence. Along with diplomacy and public order, deterrence is one of three core defence priorities that underpin defence planning in the republic. The 2004 defence review continues with these themes. Entitled "Confronting Transnational Terrorism", Chapter One of this thesis is heavily focused on ensuring that the various arms of government can act in a co-ordinated way to anticipate and react to terrorism.⁵⁷⁵ This continued commitment to deterrence is firmly embodied in the reference to "deploying the strongest possible defences against terror attacks" even "when the threat is not immediately apparent."⁵⁷⁶

- **Scenarios**

Scenario planning occupies a central role in Singaporean defence planning.⁵⁷⁷ As part of this, Operational Analysis tools have been used since the 1980's to formulate "detailed plans for a wide variety of security contingencies and crises."⁵⁷⁸ Singapore's deterrence ideology, essentially a threat based methodology, plays a central role in this process. Although this is at odds with the capability based approach of the TTCP, this reflects Singapore's unique set of strategic imperatives. As Lee Kuan Yew has restated several times since independence in

⁵⁷⁰ Republic of Singapore, Ministry of Defence, *Defending Singapore in the 21st Century* (Singapore: Ministry of Defence, 2000), 2.

⁵⁷¹ Huxley, T., *Defending the Lion City*. 30.

⁵⁷² *Ibid.*

⁵⁷³ Republic of Singapore, Ministry of Defence, *The Fight Against Terror – Singapore's National Security Strategy 2004*, 1.

⁵⁷⁴ "Guide to Capability Based Planning," 4.

⁵⁷⁵ Republic of Singapore, Ministry of Defence, *The Fight Against Terror – Singapore's National Security Strategy 2004*, 11.

⁵⁷⁶ *Ibid.* 12, 14.

⁵⁷⁷ Huxley, T., *Defending the Lion City*, 75.

⁵⁷⁸ *Ibid.*

1967, Singapore “cannot count on springing back on our feet if we are knocked off balance.”⁵⁷⁹ Ensuring the existence of pre-emptive capability is therefore an essential element of scenario planning in Singapore albeit details are confidential. Unsurprisingly, the 2004 defence review does not identify specific scenarios. However, given that the successful operation to liberate hostages on SQ117 in 1991 was “reputedly derived from scenario planning” it is highly likely the technique continues to occupy a central position in defence planning in Singapore, particularly as the 2004 defence planning document is focused on confronting terrorism.⁵⁸⁰ This suggests a possible over reliance on scenario planning. Terrorism is multifaceted and inventive. Consequently, as the range and complexity of scenarios expands the risk of overstretch due to the prevalence of too many hypothetical scenarios. Nevertheless, this is not a just a Singapore problem. Many Western governments face a similar concern.

- **Capability Goals**

Consisting of three intersecting elements, this stage of the TTCP model requires the active involvement of senior members of the armed forces.

- a. Capability Partitions**

The TTCP defence planning template describes *Capability Partitions* (or clusters) as the actual military assets designed to perform a specified task or delivered effect.⁵⁸¹ This can involve multiple or singular partitions of a defence force. As such the TTCP methodology is oriented towards the military. Capability Partitions are at the core of defence planning in Singapore. However, Singapore’s concept of “Total Defence” employs a much wider focus than armed forces alone,⁵⁸² something that can be seen strongly in the 2004 defence paper.⁵⁸³ In Singapore, Capability Partitions operate on numerous levels including economic, social and civil defence to bolster the capacity of a small state such as Singapore to confront aggression – state and non state.⁵⁸⁴ This

⁵⁷⁹ Lee Kuan Yew, “Thousands Escape ‘Enemy’ Air Raids,” *New Straits Times*, May 3rd, 1987, accessed March 16th, 2013
<http://news.google.com/newspapers?nid=1309&dat=19880216&id=Y6RUAAAAIABJ&sjid=Y5ADAAAAIABJ&pg=4760,90879>.

⁵⁸⁰ Huxley, T., *Defending the Lion City*, 75.

⁵⁸¹ “Guide to Capability Based Planning,” 4.

⁵⁸² Republic of Singapore, Ministry of Defence, *The Fight Against Terror – Singapore’s National Security Strategy 2004*, 11.

⁵⁸³ *Ibid.*

⁵⁸⁴ *Ibid.*

reflects Singapore's belief in the multiplier effect that can be attained through social and economic cohesion wedded into a whole of government approach to defence matters.⁵⁸⁵

b. Operational Concepts

Operational Concepts deal with top level military doctrine. For example, how a force will fight or deal with a given Scenario using the capabilities at its disposal? Tim Huxley has studied the SAF and its military doctrine for 20 years and in his 2000 book, *Defending the Lion City*, he describes the SAF as "opaque" with a marked reluctance to reveal anything but the most minimal details.⁵⁸⁶ This is completely unsurprising as the history of defence planning in Singapore is strongly statist.⁵⁸⁷ Furthermore, the three foundations of defence planning, including the commitment to public order, indicate an engrained belief in vulnerability incompatible with a culture of openness.⁵⁸⁸ As such, the 2004 defence review does not provide any insights into the SAF's operational concepts beyond a reference to a six hour deployment window.⁵⁸⁹

c. Future Environment (threat, technology etc)

As preceding analysis of defence planning amongst TTCP members indicates, one of the key variables planners need to consider involves future threats and the type of capabilities that will be needed and/or available. Similarly, it is important to consider the impact of technology on existing military assets as they age. Chapter Three of Singapore's 2004 defence review, deals specifically with future threats and seeks to outline the environment likely to prevail over the medium term.⁵⁹⁰ The priority afforded to integrating technological trends into defence planning is also noticeable in Singapore, a concept that some TTCP members find difficult to execute. Singapore's Defence Science and Technology Agency (DSTA) is fully integrated into defence planning processes.⁵⁹¹ This extends to procurement as well as developing the technological capabilities of the SAF, including systems development and implementation.⁵⁹² One of the key challenges of facing all defence planners involves the need to consider the impact of technology on future and existing assets in order to ensure technological trends are embedded into the defence planning process. Singapore's approach to this

⁵⁸⁵ Tan, "Singapore's Defence Policy in the new Millennium," 32.

⁵⁸⁶ Huxley, T., *Defending the Lion City*, 74.

⁵⁸⁷ *Ibid.*

⁵⁸⁸ *Ibid.* 24.

⁵⁸⁹ Republic of Singapore, Ministry of Defence, *The Fight Against Terror – Singapore's National Security Strategy 2004*, 12.

⁵⁹⁰ *Ibid.* 18.

⁵⁹¹ "DSTA," Republic of Singapore, accessed May 25th, 2013, <http://www.dsta.gov.sg/>

⁵⁹² *Ibid.*

problem is to give the DSTA a very broad technology mandate including responsibility for all new asset acquisitions as well as upgrades of existing platforms/systems.⁵⁹³ The intention is to ensure that technology trends remain at the core of “whole of life” systems management.⁵⁹⁴ Unsurprisingly, given the priority afforded to economic progress in Singapore, the DSTA is also expected to make a positive contribution to growth. For example, Major Yi-Jin Lee of the SAF suggests the pursuit of a highly technical military has exerted a very positive influence over Singapore’s economic growth by acting as a high technology incubator for other defence industries.⁵⁹⁵

- **Capability Assessment**

In the TTCP’s CBP model, Capability Assessment requires a holistic assessment of current capability options and future capabilities once planned investments are delivered.⁵⁹⁶

Logically this must follow the assessment of future strategic trends and capabilities whilst also recognising the need for a critical appraisal of current capabilities. However, the release of such information is a very sensitive topic in Singapore. Academics, such as Tim Huxley, describe Singapore as “formally democratic” however the “release of information relating to security and defence matters is tightly controlled.”⁵⁹⁷ As a consequence the 2004 and 2000 Defence Reviews are bereft of capability details. Although Huxley notes the relative transparency of strategic analysis, (e.g. NSS) he also refers to the relatively “opaque” nature of defence doctrine and policy making, both of which are critical to assessing military capability. Nevertheless, given the commitment of Singapore to defence and security, it is unimaginable that capability assessments aren’t conducted both regularly and with some vigour. For example, in the absence of strategic depth, rapid mobilisation is core to the defence of Singapore. As a result, regular tests are conducted in order to ensure that reservists meet deployment time targets.⁵⁹⁸ Of interest, it is believed that capability audits are the preserve of the SAF and Ministry of Defence and use a 3rd Generation computer system.⁵⁹⁹ No external parties are involved.⁶⁰⁰

⁵⁹³ *Ibid.*

⁵⁹⁴ *Ibid.*

⁵⁹⁵ “Singapore’s Defense Policy: Essential or Excessive?” Yi-Jin Lee, Major, accessed 28th January, 2013.

http://www.airpower.au.af.mil/apjinternational/apj-c/2011/2011-1/2011_1_11_singapore-E.pdf.

⁵⁹⁶ “Guide to Capability Based Planning,” 4.

⁵⁹⁷ Huxley, T., *Defending the Lion City*, xxi.

⁵⁹⁸ “Showcasing the Army’s Capabilities,” Republic of Singapore, Ministry of Defence, accessed 18th April, 2013, http://www.mindef.gov.sg/imindef/mindef_websites/atozlistings/army/army_news/News_Archive/2010/nov2010/CSS_TP.html

⁵⁹⁹ *Ibid.*

⁶⁰⁰ *Ibid.*

- **Identify Capability Mismatches**

The TTCP model seeks to identify any shortfalls in desired capability and as such this stage prepares the ground for investment plans. In the case of Singapore, continual systems and platform upgrades suggest a systematic process to identify and then close capability mismatches.⁶⁰¹ However, Singapore's Realist ideology and forward defence policy also means that capability shortfalls are likely to reflect a direct assessment of potential adversaries rather than strategic analysis. Ongoing capability enhancements, not to mention Asia's largest per capita defence budget, suggest that Singapore may create a regional arms race that will inevitably be self-defeating.⁶⁰²

- **Force Development Options**

The TTCP model seeks to identify the investment required to address capability gaps. In this regard, Singaporean defence policy and planning displays a very strong belief in technological dominance. In his 2000 book, *Defending the Lion City*, academic Tim Huxley describes the force development process with regards the Singaporean Airforce "as a continual effort to enhance capabilities in almost every operational area, with the aim of maintaining and, if possible, the enhancing technological edge over its potential adversaries."⁶⁰³ The assessment of force development options in Singapore is inevitably high technology and high cost.

- **Balance of Investment**

The investments identified as part of the desired *Force Development Options* must, of necessity, be assessed in relation to those that generate the greatest benefit. Furthermore, decisions must be made with direct reference to resource constraints. As this process will inevitably involve trade off decisions, guidance must come from *Defence Priorities*. This is a difficult process. Although some TTCP members, most notably Canada and the United States, have sought to introduce quantitative models to this process, it is inevitable that subjective and political pressures will come into play. In the case of Singapore, defence is seen as a part

⁶⁰¹ Huxley, T., *Defending the Lion City*, 143, 159, 122.

⁶⁰² "Military Expenditure as a % of GDP," World Bank, accessed 30th January, 2013,

<http://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS>

⁶⁰³ Huxley, T., *Defending the Lion City*, 143.

of the state's economic development strategy, particularly fostering self sufficiency and if possible export receipts.⁶⁰⁴

- **Affordable Capability Plan**

The emergence of an affordable capability plan is the final output of the TTCP capability planning process and as such, represents a practical and implementable result of stages a.- i.⁶⁰⁵ However, it is inevitable that political forces will tend to come into play at this stage. As Greener highlights in his analysis of actual defence investments in New Zealand, political decision making is perhaps the most influential of all aspects of defence planning.⁶⁰⁶ This reflects the extreme cost of many defence platforms and the perceived disconnect between long term strategic vulnerabilities and a more immediate election cycle.⁶⁰⁷ In the case of Singapore, the 25 year rule of Lee Kuan Yew and ongoing rule of the PAP has meant that defence policy has essentially remained unchanged since 1965.⁶⁰⁸ Political continuity on this scale is truly unique and unmatched in any Western state. As Singapore has become wealthier, defence has continued to enjoy the patronage of Singapore's political elite. Between 4% and 6% of GDP has been committed to defence every year for the past 40 years or more in Singapore.⁶⁰⁹ Desired capabilities are clearly very affordable in the view of the Singaporean government.

Conclusion

Singapore defence policy processes are very closely aligned with the TTCP's capability based planning model. Although the most recent formalised example of defence planning was conducted some years ago in 2004, all stages of the TTCP model are present. Given Singapore's alliance relationships with most TTCP members, formal and informal, this is unsurprising.⁶¹⁰ Nevertheless, a number of important methodological differences exist. Primarily these reflect Singapore's unique history and strategic issues. Most importantly, Singapore is a very small country surrounded by much larger neighbours with whom relations have not always been cordial. As a consequence, defence planning in Singapore appears to be more threat based than the TTCP group. Defence planning draws heavily

⁶⁰⁴ Kwah, A & Loo, B, "Examining the Defence Industrialisation – Economic Growth Relationship: the Case of Singapore," *Institute of Defence and Strategic Studies*, Paper 70. July (2004): 1.

⁶⁰⁵ "Guide to Capability Based Planning," 4.

⁶⁰⁶ Greener. *Timing is Everything – The Politics and Processes of New Zealand Defence Acquisition Decision Making*, 151-157.

⁶⁰⁷ *Ibid.*

⁶⁰⁸ Huxley, T., *Defending the Lion City*, 30.

⁶⁰⁹ *Ibid.* 28.

⁶¹⁰ *Ibid.* 37-40.

upon threat assessments and the consequent need to address capability gaps identified from comparisons with potential adversaries. Consequently, it is unsurprising to note that Singapore was advised by Israeli defence planning specialists in the early years of independence. Singapore's focus is therefore a substantial departure from the TTCP's capability based approach. Despite this, like the TTTC, defence planning in Singapore is also particularly forward looking and proactive. Similarly, perceived vulnerabilities mean Singapore actively engages in strategic analysis as a critical precursor to defence planning.

Singapore's small size and location in an uncertain region also explain why Singapore embeds technology so closely into defence planning. High technology defence systems and platforms are regarded as a way to offset these vulnerabilities, particularly regarding relative size. The importance of technological solutions is also apparent within Singaporean institutions including economic development. Although the United States is similarly focused on technological defence, no TTCP member has such a dominant place for their country's defence technology agency with regards asset life cycles, capability planning and broader governmental aspirations. The comparison with New Zealand is stark in this respect. However, Singapore's commitment to technological dominance vis-à-vis her neighbours does not come cheaply and this partly explains Singapore's high level of defence spending relative to other states. Again, the comparison with New Zealand is noticeable.

This is not the only notable difference worthy of some further comment. In particular, defence planning is conducted with extreme secrecy. This is something noted several times by Tim Huxley, perhaps the foremost analyst of the SAF. Importantly, Singapore does not seek public submissions to defence reviews and as Huxley also notes, defence planning appears to be the preserve of a political elite within the PAP.⁶¹¹ The role of politics is invariably central to actual defence planning outcomes. In the case of Singapore, the ideological beliefs of the People's Action Party are particularly pervasive and perhaps the most influential aspect of defence planning in the Lion City.

⁶¹¹ Huxley, T., *Defending the Lion City*, 30.

Chapter 11: Defence Planning in Finland

Introduction

Finland has a comparatively large defence ‘footprint’ for a country of 5.4m citizens.⁶¹² The Finnish defence budget is estimated at circa 1.5% of GDP, or US\$3.2bn, by the World Bank and⁶¹³ total military manpower is estimated at 350,000, including reservists.⁶¹⁴ This is a number largely explained by Finland’s system of universal conscription that requires that all males 18 or older serve 6-12 months in the Finnish Defence Force (FDF).⁶¹⁵ The FDF has a heavy focus on land forces and 80% of personnel belong to the Finnish Army and/or Border Guard Service.⁶¹⁶ Despite the dominance of the Army, the FDF also includes well resourced Naval and Air forces. The Finnish Navy is built around two separate “Commands” and platforms are primarily focused on littoral waters.⁶¹⁷ The Finnish Airforce comprises a wide diversity of aircraft and assets range from fighters to transports. Again the stress is on homeland defence.⁶¹⁸ Finland is not a member of NATO but is a member of the Partnership for Peace initiative involving NATO and “individual Euro-Atlantic partner states.”⁶¹⁹

Finland’s defence structures and defence policies are products of a unique strategic context and this is discussed below.

Finnish Defence Planning and Military History

Finland has a very well established military tradition despite the fact the country became fully independent in comparatively recent times. Until 1917, Finland was an imperial possession of the Russian Empire and prior to this, part of the Swedish Empire. Prior to independence, Finns formed distinct units within the armed forces of Sweden and served with the Tsarist Russia army. Underlining

⁶¹² “Population of Finland,” World Bank, accessed May 17th, 2013, <http://www.worldbank.org/>

⁶¹³ “Military Expenditure: % of GDP”, World Bank, accessed May 3rd, 2013

<http://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS>

⁶¹⁴ “Defence Forces Phasing Out Thousands of Ageing Weapons,” *Helsingin Sanomat* – April 17th, 2013, accessed May 2rd, 2013,

<http://www.hs.fi/english/article/Defence+Forces+phasing+out+thousands+of+ageing+weapons/1135265132950>

⁶¹⁵ “The Finnish Defence Forces”, FDF, accessed May 5th, 2013,

http://www.puolustusvoimat.fi/en/defence_Forces/front_Page/?urile=wcm%Apath3A/enpuolustusvoimat.fi/Puolustusvoimat.fi_en/Defence_Forces/Front_page/

⁶¹⁶ *Ibid.*

⁶¹⁷ *Ibid.*

⁶¹⁸ *Ibid.*

⁶¹⁹ “The Partnership for Peace Programme”, NATO, accessed May 6th, 2013, http://www.nato.int/cps/en/natolive/topics_50349.htm

the depth of Finland's military heritage, the country's foremost military academy at Hamina was found in 1779.⁶²⁰

Although military institutions are deeply embedded in Finland, Finnish defence policy is heavily influenced by the activities of others, most notably near neighbour Russia. Although formally part of the Tsarist Empire from 1809, Russia staged three major invasions of Finland before the Swedes were eventually driven out.⁶²¹ Under Russian rule, a Finnish militia was permitted but it was not until 1901, as part of a "Russification" effort, that Finns were required to fight as part of Imperial units.⁶²² This policy was met with "passive resistance" by the Finnish population that resulted in a Russian decision to dissolve all Finnish military institutions and units.⁶²³ As a consequence, from 1905 through to independence, the defence of Finland was essentially neglected. This trend was reinforced by Russia's focus on World War I as well as the retreat of the Tsarist Empire. Numbers of Russian troops stationed in Finland fell sharply permitting full Finnish independence.⁶²⁴

Despite Finnish self rule, the influence of great power politics in internal Finnish affairs continued after independence. Most importantly, in 1918 civil war broke out between the socialist "Reds," supported by Bolshevik Russia, and Finnish nationalist "Whites."⁶²⁵ In a conflict described as a "catastrophe" by Finnish academic Anne Heimo,⁶²⁶ the "Whites" emerged victorious but not before an estimated 34,000 Finns perished.⁶²⁷ However, this did not bring an end to Russian involvement in Finland. Two months after Soviet forces overwhelmed Poland in 1939, the USSR attacked Finland in a conflict referred to as the Winter War.⁶²⁸ The Soviets suffered significant initial losses.⁶²⁹ Nevertheless, superior numbers of troops eventually resulted in a Soviet victory.⁶³⁰ As part of a peace settlement, Finland lost significant territory whilst Finland's second largest city was forcibly ceded to the USSR.⁶³¹

⁶²⁰ "Finnish Military Academy Celebrates 200th Anniversary" *123RF*, accessed May 2nd, 2013, http://www.123rf.com/photo_12503995_finland--circa-1979-a-stamp-printed-in-the-finland-shows-old-school-hamina-academy-flag-200th-annive.html

⁶²¹ "The Final War – The Swedish Russian War of 1808-09", accessed May 4th, 2013, <http://www.multi.fi/~goranfri/index.html>

⁶²² Kari, A., "Russification in Estonia and Finland Before 1917," *Faravid*, Vol. 28 (2004): 181–194.

⁶²³ *Ibid.*

⁶²⁴ *Ibid.*

⁶²⁵ Heimo, A., "Local interpretations of the 1918 Finnish Civil War" (Phd diss University of Turku, Finland, 2009) <http://www.hum.utu.fi/oppiaineet/folk/henkilokunta/tutkijatohtoriSA/summary1918.pdf>

⁶²⁶ *Ibid.*

⁶²⁷ *Ibid.*

⁶²⁸ Engle, E., Paananen., E and Paananen., L. *The Winter War – The Soviet Attack on Finland 1939-40* (Mechanicsburg: Stackpole Books, 1973), vii.

⁶²⁹ Tomas, R. *Cold Will: The Defense of Finland* (1st ed.) (London: Brassey's Defence Publishers 2008), 79-80.

⁶³⁰ *Ibid.*

⁶³¹ Edwards, R. *White Death: Russia's War on Finland 1939–40* (London: Weidenfeld & Nicolson, 2006), 18.

The Winter War goes some way to explain just why Finland fought on the side of the Axis powers in WWII. Not only did the victory of the “Whites” in the Finnish Civil War forge strong links with Germany but the bitterness created by the Winter War meant Finns were more willing to work with the Germany Army than the Red Army.⁶³² In what has been termed the “Continuation War,” Finland, backed by Germany, engaged in an effort to oust Russian forces from territory ceded during the Winter War from 1941-1944.⁶³³ Germany appears to have regarded Finland as an ally.⁶³⁴ However, this was an awkward coalition founded on a Finnish preference for the ‘lesser of two evils.’⁶³⁵ For example, Finnish troops halted their offensive at the borders in place prior to the Winter War and did not take part in the siege of Leningrad.⁶³⁶ Nevertheless, it is “hard to overcome the fact Finland was the only democratic nation at Hitler’s side.”⁶³⁷ Eventually the relationship between Finland and Germany fractured and with the war running badly for Germany, Finland sued for peace with the USSR in late 1944.⁶³⁸

The problematic relationship between Finland and the USSR during WWII meant that during the Cold War Finland learned to tread both lightly and warily. The concept of “Finlandisation,” whereby a larger neighbour is able to influence the strategic policies of a smaller neighbour, owes its origins to the Cold War relationship between Finland and the USSR.⁶³⁹ Nevertheless, Finland has at all times since WWII remained a democracy and was never a member of the Warsaw Pact.⁶⁴⁰ Since the end of the Cold War, Finland has continued to exercise a policy of non alignment with major military blocs.⁶⁴¹ Finland is not a NATO member but a member of the Partnership for Peace.⁶⁴² Finland is also a very enthusiastic supporter of United Nations missions.⁶⁴³ This is understandable given the history of dominance by larger states. Similarly, it is unsurprising that the posture of the Finnish Defence

⁶³² *Ibid*: 172.

⁶³³ Vehviläinen, O. *Finland in the Second World War: Between Germany and Russia* (New York: Palgrave, 2002), 83.

⁶³⁴ Edwards, *White Death: Russia's War on Finland 1939–40*, 18.

⁶³⁵ Lunde, H.O. *Finland's War of Choice – The Troubled German/Finnish Coalition in WWII* (Haverton: Casemate Publishers, 2011), 2.

⁶³⁶ *Ibid*.

⁶³⁷ *Ibid*.

⁶³⁸ Grier, H. *Hitler, Dönitz, and the Baltic Sea: the Third Reich's last hope, 1944–1945* (Annapolis: US Naval Institute Press, 2007), 31.

⁶³⁹ Botticelli, P. “Finland’s Relations with the Soviet Union, 1940-1986”, accessed May 7th, 2013, <http://www.loyno.edu/~history/journal/1985-6/documents/FinlandsRelationswiththeSovietUnion1940-1986.pdf>

⁶⁴⁰ *Ibid*.

⁶⁴¹ *Ibid*.

⁶⁴² “The Partnership for Peace Programme”.

⁶⁴³ “Finland’s Participation in UN Peacekeeping Missions”, accessed May 7th, 2013 <http://formin.finland.fi/public/default.aspx?nodeid=32296&contentlan=2&culture=en-US>

Force is dominated by the concept of homeland defence. For example, border guards can be integrated quickly into Army units.⁶⁴⁴

It is also interesting to note the use of the “Total Defence” concept in Finland.⁶⁴⁵ This is a commonality shared with other small powers including Sweden and Singapore. As a result, defence policy in Finland reflects two essential doctrines:

1. Homeland defence: commitment to the integrity of borders and deterrence.
2. Total Defence: the use of Finland’s complete resources in defence of sovereignty.

Nevertheless, whilst these two approaches remain cornerstones of Finnish defence planning, the methodology now used is described as “capability based.”⁶⁴⁶

Finland’s unique strategic landscape: influence on defence policy

Although many things influence a state’s strategic posture, history and geography are particularly important as they are permanent. In this respect Finland is similar to most other states. However, Finland also has a number of unique strategic influences. The most notable of these, the long and complex relationship with Russia, has left Finland with a pronounced sense of vulnerability.⁶⁴⁷ This can be seen in the priority Finnish defence policy gives to the integrity of Finnish borders.⁶⁴⁸ As Finnish academic Anu Sallinen notes, “unlike other Nordic countries and the UK, the basic concept and primary task of the FDF” is to “defend the territorial integrity of Finland” and in particular “the promotion of security and stability in Northern Europe.”⁶⁴⁹ This strategic dogma has remained unchanged since independence and remains the single most dominant strategic issue impacting contemporary defence policy making in Finland.⁶⁵⁰

The interaction of history, geography and great power politics also means Finland has been described as “militarily non-aligned.”⁶⁵¹ This label appears to recognise lingering Cold War sensitivities. Most particularly, Finland was regarded by Russia as part of a defensive Northern European screen

⁶⁴⁴ “The Finnish Defence Forces”.

⁶⁴⁵ Salminen, P, Major General. “Finland’s Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies” (paper presented at OSCE High Level Doctrine Seminar – Technological Changes, May 25th, 2011), accessed May 7th, 2013, <http://www.osce.org/fsc/78104>

⁶⁴⁶ *Ibid.*

⁶⁴⁷ Sallinen, A. “Modernising the Finnish Defence Force – Combining Tradition with Cost Efficiency and Internationalisation” in *Denationalisation of Defence – Convergence and Diversity*, Harland, J and Osterud, O eds, (Aldershot: Ashgate Publishing, 2007), 165.

⁶⁴⁸ *Ibid.* 158.

⁶⁴⁹ *Ibid.* 157.

⁶⁵⁰ *Ibid.* 165.

⁶⁵¹ *Ibid.* 157.

intended to protect the entrances to Leningrad.⁶⁵² However, on the other hand Finland was not a member of Warsaw Pact or a formal ally of the USSR despite a Treaty of Friendship.⁶⁵³ This says a great deal about the strategic landscape facing Finland - a small, intensely independent state, with great strategic importance to a much larger neighbour. Consequently, Finnish defence policy must find a way to work with Russia but in a way that retains sufficient military resources to deter undue Russian influence. This is a theme consistent with Finland's "Total Defence Concept" that remains influential today.⁶⁵⁴

Current defence planning paradigm in Finland

The most recent example of defence planning in Finland entitled "Finnish Security and Defence Policy" was completed in 2009 and produced by the Prime Minister's Office.⁶⁵⁵ Defence White Papers were also produced in 1997, 2001 and 2004, however prior to this, defence policy assessments were conducted by parliamentary committee every five years.⁶⁵⁶ The 2009 Defence White Paper was followed in 2010 by a companion document, "The Security Strategy for Society."⁶⁵⁷ Produced by the Finnish Ministry of Defence, this document "concretises the principles and goals" contained in the 2009 Defence White Paper.⁶⁵⁸

- **Government Guidance**

The 2009 Government Security and Defence Policy Report presents "an overview of the international situation" followed by "an appraisal of how its changes affect Finland"⁶⁵⁹ and provides the foundation of all "subsequent reports, strategies and programmes that the Government prepares on security and international relations."⁶⁶⁰ As a consequence, the paper is firmly aligned with the TTCP requirement for a guiding template that sits above all other security reports including those of the Finnish armed forces.⁶⁶¹ The analysis contained within the 2009 report is extremely varied, something that is consistent with a 'whole of government' approach to national security. Comprising 125 pages, the strategic implications of issues as diverse as economics, arms control, border security

⁶⁵² "Finland's Relations with the Soviet Union, 1940-1986," 2.

⁶⁵³ *Ibid.* 1.3.

⁶⁵⁴ "Finland's Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies," 1.

⁶⁵⁵ Government of Finland. *Finnish Security and Defence Policy 2009* (Helsinki, Finnish Prime Minister's Office, 13/2009).

⁶⁵⁶ "Finland's Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies":1.

⁶⁵⁷ Government of Finland. *The Security Strategy for Society* (Helsinki, Finnish Ministry of Defence, 2010).

⁶⁵⁸ *Ibid.* 1.

⁶⁵⁹ Government of Finland, *Finnish Security and Defence Policy 2009*, v.

⁶⁶⁰ *Ibid.*

⁶⁶¹ *Ibid.*

and climate change are detailed. This provides a comprehensive strategic framework not only for the Finnish Ministry of Defence but for all government agencies including the Finnish Foreign Service.⁶⁶² Consequently, the Government Security and Defence Policy Report is very similar in tone to the NSS provided by the White House. The Finnish Government's 2009 strategic analysis provides the context for a subsequent strategic analysis paper completed in 2010 entitled "Security in Society."⁶⁶³ The two papers are part of the same policy initiative. However, the primary focus of the latter is on the broader implementation issues that flow from Finland's policy of 'Total Defence'.⁶⁶⁴ This includes a broad range of government agencies, including Defence, but also the strategic implications for the private sector and vital infrastructure. This is consistent with the concept of 'Total Defence' that lies at the heart of Finland's approach to security policy.

- **Defence Priorities**

The 2009 White Paper makes a very clear statement of Finnish Defence Priorities. The most obvious of these is "preventing military force being used against Finland."⁶⁶⁵ However, this broad statement is subsequently distilled into a set of three strategic goals.⁶⁶⁶

1. Guaranteeing the freedom of action of the state leadership;
2. Guaranteeing the livelihood and basic rights of the population;
3. Defending Finland's territorial integrity and independence.

However, most importantly, the 2009 Defence White Paper makes an extremely strong commitment to "deterrence" and it is clear that all other defence priorities are based around this core organising concept.⁶⁶⁷ This approach is consistent with the TTCP model that expresses a preference for a concise set of defence priorities as a precondition for credible, relevant scenario selection.⁶⁶⁸

- **Scenarios**

The 2009 Defence White Paper refers to the way Finnish "defence planners prepare for different scenarios in order to achieve the strategic goals of foreign, security and defence policy."⁶⁶⁹ As a consequence it is clear that scenario analysis is actively used by defence planners in Finland.

However, Finland's ideological commitment to deterrence means that threat assessments are by definition core to this process. The most obvious implication of this is that scenario setting reflects

⁶⁶² *Ibid.* 1-125.

⁶⁶³ "Security in Society", Government of Finland, accessed May 2nd, 2013, <http://www.yhteiskunnanturvallisuus.fi/en>

⁶⁶⁴ *Ibid.*

⁶⁶⁵ Government of Finland, *Finnish Security and Defence Policy 2009*, 108.

⁶⁶⁶ *Ibid.* 109.

⁶⁶⁷ *Ibid.*

⁶⁶⁸ "Guide to Capability Based Planning," 4.

⁶⁶⁹ Government of Finland, *Finnish Security and Defence Policy 2009*, 108.

the capabilities of potential military foes as distinct to those identified by strategic analysis. Whilst an attack on Finland is certainly a scenario consistent with Finnish defence priorities, this Cold War methodology is much narrower than that envisaged by the TTCP.⁶⁷⁰ Consequently, Finland’s methodology is not well aligned with the TTCP model which stresses the need to formulate scenarios consistent with government guidance rather than with reference to the capabilities of other states. As a result, the Finnish approach to scenario setting is at odds with the capability based approach advocated by the TTCP.

- **Capability Goals**

The TTCP model presents Capability Goals as a combination of three components which together constitute the desired capabilities of a defence force. In the case of Finland, Capability Goals are linked with the three strategic goals that make up Finland’s Defence Priorities.⁶⁷¹

Figure 5: Finnish Strategic Goals⁶⁷²

Strategic Goals	Requirements	Preconditions
Guaranteeing the freedom of action of the state leadership	<ul style="list-style-type: none"> • Situational awareness • Deterrence • Participation in international military crisis management 	<ul style="list-style-type: none"> • Credibility • Interoperability • Comprehensive defence approach
Guaranteeing the livelihood and basic rights of the population	In addition to the above: <ul style="list-style-type: none"> • The capability to assist other authorities • Protecting vital targets and functions 	In addition to the above: <ul style="list-style-type: none"> • Sufficient and adequately trained and equipped troops
Defending Finland’s territorial integrity and independence.	In addition to the above: <ul style="list-style-type: none"> • The ability to conduct joint operations in key areas • The ability to receive assistance from abroad 	In addition to the above: <ul style="list-style-type: none"> • Highly capable troops

Finland’s use of the term “Requirements” broadly equates with the TTCP concept of Capability Goals. It is again notable that deterrence is included on the “Requirements” list. Finally, as “Requirements” are directly related to “Strategic Goals,” the approach shown in the above table is strongly aligned with the sequential nature of the TTCP methodology.

⁶⁷⁰ *Ibid.*
⁶⁷¹ Government of Finland, *Finnish Security and Defence Policy 2009*, 109.
⁶⁷² *Ibid.*

a. Capability Partitions

“Capability Partitions” describe the various military units that together make up a particular capability.⁶⁷³ In the TTCP model, partitions are not necessarily singular and may in practical terms comprise land, sea and air elements within the one capability package.⁶⁷⁴ This appears to be the case with the Finnish Defence White Paper which draws no distinction between the three services. For example, the term “Preconditions” outlines the capabilities expected of all Finnish military units.⁶⁷⁵ However, the set of “Preconditions” detailed in the 2009 Defence White Paper are poorly defined. For example, reference to “Interoperability” could involve interaction within the Finnish armed forces as much as between other states. Similarly, reference to “highly capable troops” lacks any sense of definition.⁶⁷⁶ Nevertheless, the Defence White Paper does provide an indication that “Capability Partitions” are well aligned with the country’s ‘Total Defence’ concept. Although the White Paper itself again lacks any great detail in this respect, the combination of military, commercial and societal forces that together constitute Finland’s “comprehensive defence approach” is presented in greater detail in the 2010 analysis “Security in Society”.⁶⁷⁷

b. Operational Concepts

Operational Concepts reflect a country’s military doctrine. Prior to the end of the Cold War, Finnish “military doctrine was based on the experience of three wars in the course of WWII” and the consequent need for rapid mobilisation.⁶⁷⁸ This doctrinal priority can still be seen in the 2009 Defence White Paper which divides “crisis management capabilities into rapid reaction, lower readiness, niche capabilities and enablers.”⁶⁷⁹ The importance of response times also confirms the pivotal role that reserve forces occupy within the defence structure of Finland. Finally, military analysts suggest that Finland’s de- facto neutral status remains highly influential with regards Finnish military doctrine.⁶⁸⁰ However, it is notable that the 2009 Defence White Paper includes substantial reference to the importance of “collaborative strategic and tactical transport”⁶⁸¹ with NATO and “participation in international military

⁶⁷³ “Guide to Capability Based Planning,” 7.

⁶⁷⁴ *Ibid.*

⁶⁷⁵ Government of Finland, *Finnish Security and Defence Policy 2009*, 109.

⁶⁷⁶ *Ibid.*

⁶⁷⁷ “Security in Society.”

⁶⁷⁸ “Finland’s Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies,” 1.

⁶⁷⁹ Government of Finland, *Finnish Security and Defence Policy 2009*, 113.

⁶⁸⁰ “Finland’s Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies,” 1.

⁶⁸¹ Government of Finland, *Finnish Security and Defence Policy 2009*, 113.

crisis management.”⁶⁸² Consequently, the 2009 Defence White Paper illustrates that Finland’s set of Operational Concepts have broadened significantly in terms of both scope and outlook.

c. Future Environment (threat, technology etc)

The TTCP views the concept of future environment through a very wide lens, including both technological and geo-political threats.⁶⁸³ Recent examples of defence planning in Finland appear to consider these issues robustly. For example, the 2009 White Paper devotes over half its length to emerging and future strategic themes. Similarly, Major General Pertti Salminen, Director of the Department of Strategic Studies at the Finnish National Defence College, refers to the way in which successive White Papers, including that of 2009, have considered the important contribution of emerging technology to the defence of Finland.⁶⁸⁴ To back this viewpoint, Salminen refers to “close co-operation” between the Finnish Ministry of Defence and “advanced communications and the computer industry since the 1970’s.”⁶⁸⁵ Furthermore, Sallinen suggests that 2009 Defence White Paper recognises the need to include “emerging threats and technological developments (in) the defence doctrines of Finland.”⁶⁸⁶ This is a methodology that has significant commonality with the TTCP.

• **Capability Assessment/ Identify Capability mismatches/ Force Development Options**

Capability assessment requires an impartial and critical analysis of a nation’s actual military capability. However, information of this nature is clearly security sensitive. In this respect it is unsurprising that Finland’s 2009 Defence White Paper provides limited detail regarding capability gaps. However, judging by numerous references to priority capabilities, it is clear that a capability assessment has been conducted and that this identified a number of capability shortfalls. The most notable example is the decision to “focus on air defence until 2012 and thereafter shift focus to the army’s regional troops ... post 2016 the army’s operational units are to be upgraded.”⁶⁸⁷ This provides clear evidence that an in-depth capability assessment has been conducted and that this has identified a number of capability mismatches. In doing so, this methodology provides the basis for a

⁶⁸² *Ibid.* 112.

⁶⁸³ “Guide to Capability Based Planning,” 7.

⁶⁸⁴ “Finland’s Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies,” 2.

⁶⁸⁵ *Ibid.* 3.

⁶⁸⁶ *Ibid.* 5.

⁶⁸⁷ Government of Finland, *Finnish Security and Defence Policy 2009*, 116.

medium term force development programme which is an output well aligned with the TTCP model.⁶⁸⁸

- **Balance of investment**

Balance of Investment decisions represent the penultimate phase of the TTCP's capability based planning model and one that reflects previously completed analysis. In contrast to the paucity of information regarding capability assessments, the 2009 White Paper is more open regarding planned military investments. In a section entitled "Maintaining and improving the Defence Forces capabilities" spending decisions are presented openly.⁶⁸⁹ In addition to the priority afforded to investments in air defence and the army, the 2009 Defence White Paper also identifies several other force investment options. These include:

- a. Upgraded command and control systems;
- b. Real time targeting;
- c. Enhanced mobility and logistics

This list suggests that the Finnish Ministry of Defence has based its investment plans on capability gaps. However, the White Paper provides no information regarding the use of a prioritisation mechanism or objective decision tool. For example, air defence is afforded a top priority but just how this decision was reached is not detailed.

- **Affordable Capability Plan**

An Affordable Capability Plan is the ultimate stage of the TTCP model. However, as Greener's analysis of defence planning in New Zealand shows, politics is more likely to intervene at this stage than at any other.⁶⁹⁰ However, Finland's 2009 Defence White Paper does not appear to have been conducted with a pre-conceived budget in mind. It is particularly notable that in 2009, defence spending as a percentage of GDP spiked to a 10 year high of 1.62% despite the fiscal pressures of the Global Financial Crisis (GFC).⁶⁹¹ This suggests that the 2009 Defence White Paper was strategy driven not fiscally or politically driven. Consequently, the capability plan outlined in the paper should be considered affordable. However, it is most unlikely that Finland's 2009 defence investment plan addresses every capability gap. How Finland reconciled competing capability priorities is difficult to assess. As noted previously, no information is provided regarding the use of a prioritisation methodology apart from the rather arbitrary decision to allocate "One third of the defence budget to

⁶⁸⁸ "Guide to Capability Based Planning," 4.

⁶⁸⁹ Government of Finland, *Finnish Security and Defence Policy 2009*, 115.

⁶⁹⁰ Greener, P. *Timing Is Everything*, 151-157.

⁶⁹¹ "Share of Defence Budget of GDP", Government of Finland, accessed May 3rd, 2013, <http://www.defmin.fi/?l=en&s=122>

defence materiel procurement and development of capabilities, another third to cover personnel expenses, and the final third to finance operational costs and facilities.”⁶⁹² Nevertheless, the concept of affordability is a subjective one. Whether or not the 2009 Finnish Defence White Paper provides an affordable capability plan is likely to be a matter of personal interpretation. This is the case with most defence budgets. As a result, it is perhaps unsurprising that the TTCP model is silent when it comes to defining just what the term “affordable” means.⁶⁹³

Conclusion

In a 2011 paper presented to a seminar on military doctrine, hosted by the Organisation for Security and Co-operation in Europe (OSCE), Finnish Major General Pertti Salminen made the claim that when it comes to “Capability development we follow North Atlantic Treaty Organisation (NATO) procedures and standards.”⁶⁹⁴ Analysis of Finland’s 2009 Defence White Paper supports this contention and has found that Finnish defence planning is both capability based and well aligned with the TTCP/NATO model.⁶⁹⁵ It is also significant that, in common with many of the other states surveyed in this thesis, technological research is embedded into defence planning structures. The interaction between the Finnish Ministry of Defence and the Finnish computer and communications industries is notable. However, in one very important respect, the Finnish approach differs substantially. As the 2009 Defence White Paper indicates, Finland’s continued belief in deterrence means a threat based framework continues to exert considerable influence. As such, it appears that two defence planning paradigms co-exist in a complementary manner.

Just why this hybrid approach to defence planning exists in Finland reflects Finland’s unique strategic culture. Strategic culture represents a blend of many elements. However, politics, geography and history are particularly important. As far as Finland is concerned, the most influential historical event is the fact Finland was invaded three times in WWII. However, this is not the only event of strategic importance. Finland has at various times been an imperial possession of both Russia and Sweden. Furthermore, Finland experienced a bloody civil war just after independence and has a long history of uneasy relations with its neighbours, most notably Russia. These pivotal events explain why threat based planning and the ideology of deterrence remain influential today.

⁶⁹² Government of Finland, *Finnish Security and Defence Policy 2009*, 121.

⁶⁹³ “Guide to Capability Based Planning,” 4.

⁶⁹⁴ “Finland’s Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies,” 5.

⁶⁹⁵ NATO uses the same capability based model as the TTCP. Source: NATO Research and Technology Board: Panel On Studies, Analysis and Simulation (SAS), *Handbook in Long Term Defense Planning*, 2001.

Perhaps this is no surprise. Finland has never embraced Europe to the extent of its Nordic neighbours. Likewise, Finland has always been wary of Russia. This independence of thought explains why her defence posture has always been different to that of Western European states as well as Russia. The 2009 Defence White Paper shows this. However, Finnish defence policy also highlights the limitations of ubiquitous defence planning models such as that advocated by the TTCP. Domestic influences will always dominate and the hybrid defence planning model employed by Finland is a direct recognition of this reality. Despite this, it is worth noting that fiscal and political pressures appear to have had a relatively mild influence on the 2009 defence review. Consequently, Finnish defence planning has been conducted in the relative absence of a preconceived fiscal envelope. This has allowed key defence policy decisions to be made without the overwhelming pressure of comparatively short term budgetary constraints - an influence poorly matched with the exceptionally long term nature of defence assets. This is extremely positive.

Chapter 12: Conclusion

One of the primary aims of this thesis has been to examine the extent to which practical examples of defence planning adhere to the Capability Based Planning (CBP) model presented by TTCP. This thesis has utilised a comparative case study methodology and through this it has been found that defence planning processes in all seven case studies have significant commonality with the TTCP template. This suggests that the sequential CBP methodology has become somewhat of a global defence planning standard. However, it is also clear that actual defence investment outcomes often differ from those generated by this capability based model.

Greener's analysis shows this has often been the case in New Zealand. However, it is equally clear from the research undertaken by this thesis that New Zealand is not the only state to experience this phenomenon. In all of the TTCP member states, final capability outcomes are either at odds with CBP generated recommendations and/or inconsistent with preceding stages of the CBP process. These findings are summarised below:

- Australia: The 2009 Defence White Paper fails to draw an explicit link between the government's strategic assessment and defence priorities. In doing so, latter stages of the defence planning process are severely distorted leading to a sense of incoherency. A particularly notable inconsistency reflects the decision to lift investment in maritime forces when one of the key strategic issues identified refers to a likely increased need for stabilisation type operations.
- Canada: The CFDS has extremely weak analytical links between the long term future strategic issues identified by the Canadian Government and the subsequent statement of defence priorities and consequent investments. Despite significant changes in global affairs, Canadian defence priorities are, for the most part, a restatement of earlier defence planning documents. This suggests the CFDS is more focused on fiscal planning than on long term defence capability planning.
- United States: For the most part, QDR 2010 follows a logical and methodologically disciplined process. Nevertheless, this is not the case in one essential respect. The document attempts to find a compromise between winning current conflicts and making the investments required to prepare for future wars. This is an understandable trade-off. However, this is an inconsistency of process centred on two important aspects of CBP and

defence planning in general – the pivotal significance of forward planning and achieving consistency with high level strategic themes.

- United Kingdom: SDSR also suffers from inconsistencies between various stages of the CBP process. The most important of these reflect disjointed connections between the ‘Top Down’ strategic analysis provided by the NSS and the ‘Bottom Up’ pressures of preconceived fiscal constraints and a compulsion to win current wars. This is shown in two important capability decisions, both of which are at odds with the NSS - aircraft carriers (retained) and Nimrod maritime surveillance (cancelled).

As can be seen, causation is wide ranging and as such, no single reason appears to exist to explain the recurrent pattern of distorted capability decision making identified by this thesis. Nevertheless, the most common problem reflects a lack of continuity between the various phases of the CBP process. The most notable failure in this regard is the inability to ensure latter stages remain consistent with high level strategic priorities. Such discontinuity appears to reflect externalities that impact the defence planning process. Specifically, the CBP process may suggest an optimal set of capabilities but socio-political and fiscal pressures are often so overwhelming that capability optimisation is not achieved. As a consequence, the formerly disciplined CBP model becomes disconnected and disjointed. In this respect New Zealand is not alone.

This thesis also sought to identify if smaller states regard CBP as a useful template to guide defence planning. It has been established that small states Singapore and Finland also use CBP and that, for the most part, the process they employ matches that of the TTCP model. However, a number of other important themes have also been revealed and these are summarised below:

- Singapore: CBP is present at all levels of the defence planning process in Singapore. However, CBP should be regarded as an adjunct. The dominant defence planning ideology is based on Singapore’s distinctive strategic culture and consequent commitment to ‘Total Defence’. For example, capability gaps and resulting defence investments are assessed with reference to the capabilities of neighbouring states. This is a major departure from one of the key tenants of the TTCP model which frames capability gaps within a broader set of considerations such as operational concepts and future technological environment.
- Finland: Recent examples of defence planning in Finland show the presence of key CBP elements albeit with shortcomings such as poorly defined capability partitions. However, this is not the most significant finding. More importantly, defence investments in Finland are

made with reference to a hybrid model encompassing both threat and capability based approaches. This is a reflection of Finland's unique strategic environment and the concept of 'deterrence' remains central to Finnish defence planning. This is a substantial departure from the TTCP's CBP model which emerged in response to the perceived failings of the Threat Based paradigm employed by NATO during the Cold War.

From this it is clear that the usefulness of CBP is not restricted to large states alone. However, in Singapore and Finland, the CBP process is distorted by their unique strategic cultures. This reflects geographical, political, historical and societal forces that have shaped the perspectives and strategic outlook of both countries. Interestingly, both states employ the philosophy of 'Total Defence.' In doing so, both Singapore and Finland use a Threat Based methodology in conjunction with Capability Based Planning. This hybrid defence planning model is significantly different to that used by New Zealand and its TTCP partners and a template that reflects circumstances specific to the countries concerned. As a consequence, it is hard to imagine what utility New Zealand would gain by matching their approaches. However, it is equally apparent that it is possible for CBP to co-exist alongside other defence planning methodologies, in this case those that reflect specific strategic cultures.

The flexibility of use offered by CBP is not the only feature of interest. It is also apparent that a number of the structures and processes employed by the states surveyed in this thesis are worthy of consideration by New Zealand defence planners. These are outlined below:

- Australia: Defence planning in Australia has a very strong emphasis on technology and the DSTO is involved right across the capability life cycle - from conception to upgrade and eventual disposal. Defence planning in Australia also has a noticeable involvement of external advisors and advisory boards as part of an initiative to improve governance. This also appears to be an attempt to identify alternatives to 'group thinking' and provide broader, non military, perspectives to defence planning.
- Canada: Defence planning and capability development in Canada also has a very strong focus on governance structures. Specifically, the Integrated Risk Management Framework seeks to reduce capability development risks. Another noticeable theme is the attempt to employ quantitative tools to establish defence spending priorities. As with Australia, Canadian defence planners also seek to identify the impact of technology across the capability life-cycle.

- United States: Capability development in the United States revolves around a dedicated risk management framework (DRMF) that seeks to reduce the number of errors and misjudgements. Whilst, the DRMF is a core governance structure based on quantitative criteria, the integration of external technology expertise is central to this approach. The analysis of technological trends and the use of quantitative cost/benefit tools are both essential elements of capability development processes in the United States.
- United Kingdom: The UK has also introduced external appointees to capability decision making and most specifically the Defence Board that oversees capability development. Reforms also include the formation of a Major Project Review Board as a new governance structure. This appears to offer some utility. Although SDSR has been criticised on the basis of preconceived outcomes, the process managed to balance the defence budget for the first time in many years.
- Singapore: Defence planning in Singapore also has a very strong stress on technology and this is regarded as way to offset vulnerabilities attributable to Singapore's small physical size. The centrality of technology within the defence planning apparatus of Singapore has no rival in the TTCP – not even the US. It is also notable that capability based defence planning is undertaken in a manner that also accommodates the concept of 'Total Defence'. This is a key aspect of Singapore's strategic culture albeit one that is at odds with capability based defence planning ideology.
- Finland: Finnish defence planning highlights the importance of links between defence capability planning and indigenous technology firms. These links, which have been nurtured since the 1970's, appear to reflect Finland's traditional belief in military self reliance and represent a practical example of 'Total Defence.'

These findings highlight numerous important lessons for New Zealand defence planners. However, four particularly significant issues present themselves:

- **Technological change**: New Zealand must continue to focus on ways to reduce risk across the entire capability life-cycle. Good governance is vital in this regard. The Capability Management Board (CMB) is an important initiative and one that is mirrored by structures in most, if not all, TTCP partner states. However, it is essential that the CMB considers technology across the capability life-cycle as is the case in Australia, Canada and United States. A formal role for the Defence Technology Agency needs to be embedded into the CBP

process and into the CMB in order to consider the long term compatibility of capability decisions and technological change.

- External expertise: An awareness as to the danger of 'group thinking' is also apparent in the defence planning structures of TTCP members. Scenario selection and the choice of appropriate capability packages are particularly exposed to such a problem. In order to ameliorate this difficulty, the use of external advisors in the areas of strategic analysis and technology is common in the group of surveyed countries and should be considered in New Zealand.
- Quantitative approaches to capability optimisation offer significant potential as a means by which to increase the level of objectivity in capability decisions. Australia, Canada and the United States have invested significant resources in this area and it is hoped that through the TTCP these can be evaluated for use by the NZDF and NZMOD.
- Defence planning in Singapore and Finland suggests that a hybrid model based on CBP but adapted to the realities of a states individual strategic culture, can work in a practical context. The importance of New Zealand's strategic culture needs to be acknowledged by defence planners.

This last point is worthy of further comment. Defence planners in Singapore and Finland clearly recognize the importance of their respective strategic cultures. This is an understanding shared with both politicians and citizens alike. In response, a hybrid defence planning model based on a shared sense of strategic consensus has emerged in both states. This consensus over-rides CBP generated recommendations when it is considered appropriate to do so by defence planners. The examples of Singapore and Finland also suggest that in order to improve the efficacy of defence capability outcomes, strategic culture must find expression within defence planning processes. This is a very important lesson for New Zealand. Unless strategic culture is accepted as perhaps the ultimate arbiter of defence investment decisions, incoherency and distortions appear assured. Nevertheless, a positive aspect is that Singapore and Finland also suggest that New Zealand's existing CBP model has the flexibility necessary to perform this task.

Finally, the usefulness of TTCP membership must be acknowledged. The benefits that accrue from membership are substantial and provide New Zealand with an unparalleled ability to compare and learn from likeminded states. However, this process is clearly a dynamic one. Although the essential aspects of CBP are present in all surveyed states, local nuances are common and the development of

these will be ongoing. CBP is an evolutionary defence planning methodology. As a consequence, it is vital that New Zealand regularly monitors the use and efficacy of the Capability Based Planning model as employed in other states.

Bibliography

Research Methodology Bibliography

Books

Feagin, J., Orum, A., & Sjoberg, G. (Eds.). *A case for case study*. Chapel Hill, NC: University of North Carolina Press, 1991.

Landman, T. *Issues and Methods in Comparative Politics: An Introduction* (3rd ed.). London: Routledge, 2008.

Oliver, P. *Writing Your Thesis*. London: Sage Publications, 2004.

Walliman, N. *Social Research Methods*. Newbury Park, CA: Sage Publications, 2005.

Yin, R. K. *Case study research: Design and method*. Newbury Park, CA: Sage Publications, 1984.

Periodicals, research papers & theses

Eisenhardt, K. M. "Building theories from case study research". *Academy of Management Review*, No 14 (1989): 532-550.

Parkhe, A. "Messy" research, methodological predispositions, and theory development in international joint ventures." *Academy of Management Review*, No 18 (1993): 227-268

Smelser, H.G. "Notes on the Methodology of Comparative Analysis of Economic Activity." Paper presented at the Sixth World Congress of Sociology, Evian: International Sociological Association, Vol. 2 (1966): 101-17.

Tellis, W. "Application of a Case Study Methodology." *The Qualitative Report*, Vol 3, No 2 (July 1997): 2. Accessed August 13th, 2013. <http://www.nova.edu/ssss/QR/QR3-2/tellis1.html>

Zucker, D.M. "Teaching Research Methods in the Humanities and Social Sciences How To Do Case Study Research." *School of Nursing Faculty Publications Series*. Paper 2, Chapter 14 (2009): 1.

Yan, A and Gray, B. "Bargaining Power, Management Control, and Performance in United States – China Joint Ventures: A Comparative Case Study." *Academy of Management Journal*, Vol 37, No 6 (1994): 1480.

Websites

Johansson, R. "Case Study Methodology." Accessed August 12th, 2013. <http://www.infra.kth.se/bba/IAPS%20PDF/paper%20Rolf%20Johansson%20ver%202.pdf>

New Zealand & Capability Based Planning Bibliography

Books

Davis, P.K. *Analytic Architecture for Capabilities Based Planning, Mission System Analysis and Transformation*. Santa Monica: Rand Corporation, 2002.

Davis, P.K. "Uncertainty Sensitive Planning" in *New Challenges, New Tools for Defense Decision Making*, edited by Stuart, E. Johnson, 131-155. Santa Monica: Rand, 2003.

Greener, P. *Timing Is Everything*. Canberra: Australian National University, 2009.

Hensley, G. "The Relationship Between Defence and Foreign Policy". In *Fifty Years of Foreign Policy*, edited by Ann Trotter. Dunedin: University of Otago Press, 1993.

Longhurst, K.A. *Strategic Culture: The Key to Understanding German Security Policy?* Birmingham: University of Birmingham: 2000.

Newman, I., Benz, C. R., Weis, D., & McNeil, K. *Theses and dissertations: A guide to writing in the social and physical sciences*. Maryland, MA: University Press of America, 1997.

Government & other official documents

North Atlantic Treaty Organisation (NATO). Research and Technology Board, Panel on Studies, Analysis and Simulation (SAS). *Handbook in Long Term Defence Planning*. Neuilly-sur-Seine: NATO, 2003.

New Zealand. Ministry of Defence. *Defence White Paper 2010*. Wellington: New Zealand Government, 2010.

New Zealand. Ministry of Defence, "Reporting Timeline for CMB". Wellington. New Zealand Government. Paper presented by government officials, Wellington, April 12th, 2012.

New Zealand. Ministry of Defence, "Capability Management Board Risk Management Policy". Paper presented by government officials, Wellington, March 12th, 2012.

New Zealand. Defence Force, *New Zealand Defence Doctrine*. Wellington: New Zealand Government, 2012.

New Zealand. Ministry of Defence. *Defence Capability Plan*. Wellington: New Zealand Government, 2011.

New Zealand. Ministry of Defence, *Vote Defence Force 2011*. Wellington: New Zealand Government, 2011.

The Technical Co-operation Program (TTCP). TTCP Joint Systems and Analysis Group, Technical Panel 3. *Guide to Capability Based Planning*. Washington: TTCP, 2012.

United Kingdom. Ministry of Defence, *National Security Strategy (NSS)*. London: United Kingdom Government, 2008.

Periodicals, research papers & theses

Cadle, S. "Homeland Security Capabilities Based Planning: Lessons from the Defense Community". *Homeland Security Affairs*, Vol 1, No 2, Fall (2005): 4.

Dickens, D. "Capability Planning: Towards A Third Way." Paper presented at the NZIIA Conference on Defence Policy After East Timor, Wellington, February 2001.

Hoadley, S. "From Defence to Security: NZ's hard power, soft power and smart power." *New Zealand International Review*. Vol 32. No5, Sept-Oct (2007): 19.

Johnston, I.A. "Thinking About Strategic Culture." *International Security*, Vol 19, No 4 (1995): 33-64.

Kirkpatrick, D. "The Next UK Defence Review Must Do Better". *Royal United Services Institute (RUSI)*, Autumn/Winter (2011): 1. Accessed February 18th, 2013.
http://www.rusi.org/publications/defencesystems/ref:A4ED39CBAAB192/#.UlX4blz2_cs

Luke, L. "New Zealand's Defence Posture: a new direction?" *New Zealand International Review*, Vol 34, No 3, May-June (2009); 26.

McGraw, D. "The Defence Debate in Australia and New Zealand." *Defence Studies*, Vol 7, Issue 1, March (2007): 95.

Newton, R. "The Technology Co-operation Program (TTCP) Maritime (MAR)." *The NPS Maritime Defense Research Program Newsletter*, No 48, July-August (2010): 1. Accessed March 14th, 2013, <http://calhoun.nps.edu/public/bitstream/handle/10945/24549/%3Fview%26did%3D16287.pdf?sequence=1>

Patman, R.G. "The Transformation of New Zealand Foreign Policy." *Centre for Strategic Studies, Victoria University Working Paper 21/05*, (2005): 1-23.

Price Waterhouse Coopers (PWC), "Agile Defence." *Sector Research Periodicals* (2012): 6-10.

Quigley, D. "The Evolution of NZ Defence Policy." *Security Challenges*, Vol 2, No 3, October (2006): 57. Accessed September 12th 2013, <http://www.securitychallenges.org.au/ArticlePDFs/vol2no3Quigley.pdf>.

De Spiegeleire, S, "10 Trends in Capability Planning for Defense and Security." Paper presented at the NATO International Conference on Defense Capability Portfolio Analysis, Paris, 12th-14th May, 2009.

Webster, F.E. "Understanding the Relationships Among Brands, Consumers and Resellers." *Journal of the Academy of Marketing Science*, Vol 28, No 17 (2000): 17-23.

Websites & newspaper articles

GMW News Agency. "New Zealand Armed Forces Chief Admits Shock of Reforms." Accessed March 20th, 2013. http://en.gmw.cn/2013-01/30/content_6565133.htm

Military Education Research Library Network. "Defence White Papers." Accessed 20th April, 2013. <http://www.merln.ndu.edu/whitepapers.html>

New Zealand Defence Force. "Capability Management Framework." Accessed March 17th, 2013. <http://www.nzdf.mil.nz/public-documents/soi/2007/part-a/section-2/capability-mangement>

New Zealand Defence Force. "Capability Requirements List." Accessed March 19th, 2013. <http://www.nzdf.mil.nz/public-documents/soi/2007/part-a/section-2/capability-management-framework.htm>

New Zealand Defence Force. "Employment Contexts." Accessed April 13th, 2013. <http://www.nzdf.mil.nz/at-a-glance/employment-contexts.htm>

New Zealand Defence Force. "Military Capability". Accessed March 19th, 2013. <http://www.nzdf.mil.nz/what-we-do/military-capability.htm>

New Zealand Defence Force. "Military Response Options". Accessed April 16th, 2013. <http://www.nzdf.mil.nz/public-documents/annual-report/2010/section-3/mil-capability.htm>

New Zealand Defence Force. "NZDF Output Plan." Accessed March 20th, 2013. http://www.parliament.nz/NR/rdonlyres/730CAF22-EAC0-4F7B-9412-5A1DEE0A4AD4/194775/49SCFDT_EVI_00DBSCH_EST_10656_1_A188393_StandardEs.pdf

New Zealand Ministry of Defence. "Briefing For The Incoming Minister of Defence." Accessed March 18th, 2013. <http://www.defence.govt.nz/pdfs/reports-publications/election-brief-2011-backgroud-information.pdf>

New Zealand Ministry of Defence. "Defence Capability and Resourcing Review." Accessed March 20th, 2013. <http://www.defence.govt.nz/reports-publications/dcarr/dcarr-tor.html>

New Zealand Ministry of Defence. "Evaluation Division." Accessed March 20th, 2013. <http://www.defence.govt.nz/about-us/divisions.html>

New Zealand Ministry of Defence. "Independent Advisors." Accessed March 18th, 2013. <http://www.defence.govt.nz/pdfs/indepdent-advisers-defence-capability-board.pdf>

New Zealand Ministry of Defence. "Management and Utilisation of Mission Essential Tasks." Accessed April 17th, 2013. <http://www.defence.govt.nz/reports-publications/evaluation-report-13-2011-management-utilisation-mission/section1-introduction.html>

New Zealand Ministry of Defence. "NZDF Operational Preparedness Reporting System (OPRES)." Accessed March 20th, 2013. <http://www.defence.govt.nz/pdfs/reports-publications/evaluation-report-5-2011-nzdf-operational-preparedness-reporting-system.pdf>

New Zealand Ministry of Defence. "The New Zealand Ministry of Defence." Accessed June 10th, 2013. <http://www.defence.govt.nz/>

Office of the Auditor General. "Overview by the Auditor General." Accessed June 10th, 2013. <http://www.oag.govt.nz/2001/lav-lov>

Australian Bibliography

Books

Dibb, P. "Australia's Defence Policies in the post Cold War Era" in *Seeking Asian Engagement in World Affairs*, edited by James Cotton and John Ravenhill, Chapter 5. Melbourne: Oxford University Press, 1997.

Hookey, H and Roy, D. *Australian Defence Planning: Five Views from Policy Makers*. Canberra: Australian National University, 1997.

Huisken, R and Thatcher, M (eds). *History as Policy: Framing the debate on the future of Australia's Defence policy*. Canberra: ANU, 2007.

White, H. "Four Decades of the Defence of Australia: Reflections on Australian Defence Policy over the past 40 years" in *History as Policy: Framing the debate on the future of Australia's Defence policy*. 163-189. Canberra: Australian National University, 2007.

Government & other official documents

Australia. Department of Defence. *Defence Capability Development Handbook*. Canberra: Australian Government, 2012.

Australia. Department of Defence. *Defence Capability Development Manual*. Canberra: Australian Government, 2006.

Australia. Department of Defence. *Defence Capability Plan 2009*. Canberra: Australian Government, 2009.

Australia. Department of Defence. *Defence Capability Plan 2012*. Canberra: Australian Government, 2012.

Australia. Department of Defence, *Defence Procurement and Sustainment Review 2008 (Mortimer Review)*. Canberra: Australian Government, 2008.

Australia. Department of Defence. *Defence Procurement Review 2003 (Kinnaird Review)*. Canberra: Australian Government, 2003.

Australia. Department of Defence. *Defence White Paper 2009*. Canberra: Australian Government, 2009.

Australia. Department of Defence. *Defence White Paper – Public Discussion Paper*. Canberra: Australian Government, 2008.

Periodicals, research papers & theses

Abbass, H.A et al. "Computational Scenario-based Capability Planning." Paper presented by Defence, Science and Technology Organisation (DSTO) at the 10th annual conference on genetic and evolutionary computation, Atlanta Georgia, July 8th, 2008.

Angevine, J.E. "Dangerous Luxuries." *Brookings Institute Briefing*, May 5th (2011):1. Accessed March 22nd, 2013. <http://www.brookings.edu/research/papers/2011/05/31-australia-defense-angevine>

Angevine, J. E. "Mind The Capabilities Gap." *Brookings: 21st Century Defense Policy Initiative*, Paper No 6, June (2011): 1-2.

Beazley, K. "White Paper Then and Now: Returning to Self Reliance as a Labor Leit-Motif." *Security Challenges*, Vol 5, No 4, Summer (2009): 59-74.

Dibb, P. "The Importance of the inner arc to Australian Defence policy and planning." *Security Challenges*, Spring (2012):13-31.

Dibb, P. "The Conceptual Basis of Australia's Defense Planning and Force Structure Development." *ANU Papers on Strategy and Defense*, No 88 (1992): 151.

Gori R, Chen, P and Pozgay, A. *Model Based Military Scenario Management for Defence Capability*. Paper presented by DSTO analysts, Canberra, 2006.

Hodge, R and Walpole, G. "An Alternative approach to Defence Capability Planning." *The Challenge Network*, (2000): 1. Accessed September 20th, 2013. http://www.chforum.org/library/aust_defence.shtml

Langmore, J, Logan, C and Firth, S. "The Australian 2009 Defence White Paper: Analysis and Alternatives." Paper presented to Australian Policy Forum, 15th September, 2010. Accessed 15th April, 2013. <http://www.nautilus.wpengine.netdna-cdn.com/wp.../langmore-logan-firth.pdf>

Leckie, C, Major. "Dangerous Assumptions: Australia's defence posture." *Australian Defence Force Journal*, No 188 (2012): 11-23.

McGraw, D.J. "Australian Defence Policy Under The Howard Government: Balancing Two Strategies." *New Zealand Journal of Defence Studies*, Vol 3 (2009): 19-25.

Walters, P. "The Making of the 2009 Defence White Paper." *Security Challenges*, Winter (2009): 7.

White, H. "Beyond the defence of Australia: finding a new balance in Australian Strategic Policy." *Lowy institute Paper No 16* (2006): 2-12.

White, H. "Defence Policy in the Asian Century." *NZ International Review*, Vol 34, No 2 March/April (2009). 2-8.

Websites & newspapers articles

Australian Department of Defence. "Capability Development Group." Accessed March 20th, 2013.

<http://www.defence.gov.au/Capability/home/Default.asp>

<http://www.defence.gov.au/capability/DSTO/Information.asp>

Australian Government. "Defence White Paper." Accessed March 12th, 2013.

<http://www.defence.gov.au/whitepaper/>

Beazley, K. "In defence of sound military planning". *Sydney Morning Herald*, May 3rd, 2009. Accessed March 21st, 2013. <http://smh.com.au/opinion/in-defence-of-sound-military-planning-20090503>

Defence Materiel Organisation. "2009 Defence Capability Plan." Accessed March 22nd, 2013.

<http://www.defence.gov.au/dmo/id/dcp/dcp.cfm>

White, H. "Muddled Report Leaves Gaps in our Defence." *The Australian*, May 4th, 2009. Accessed March 23rd, 2013. <http://www.theaustralian.co.au/news/muddled-report-leaves-gaps-in-our-defence>

Canadian Bibliography

Books

Bland, D.L and Maloney, S.M. *Campaigns For International Security: Canada's Defence Policy At The Turn Of The Century*. Kingston: McGill-Queens University Press, 2004.

James, P. *Canada and Conflict*. Ontario: Oxford University Press, Canada, 2012.

Government & other official documents

Canada. Canadian Auditor General. *Financial Management and Control – National Defence*. Ottawa: Canadian Government, 2009.

Canada. Canadian Defence Academy. *A CF Strategic Capability Planning Process*. By Morrissey, C. Kingston: Department of National Defence, 2009.

Canada. Department of National Defence. *Canada's Engagement in Afghanistan*. Ottawa: Canadian Government, 2013.

Canada. Department of National Defence, *Canada First Defence Strategy*. Ottawa: Canadian Government, 2008.

Canada. Department of National Defence. *Report on Plans and Priorities 2011/2012*. Ottawa: Canadian Government, 2012.

Canada. Department of National Defence. *Report on Plans and Priorities 2012/2013*. Ottawa: Canadian Government, 2013.

Canada. Department of National Defence. *The Strategic Capability Investment Plan*. Ottawa: Canadian Government, 2012.

Canada. Directorate of Operational Research, Operational Research Division. *The Canadian Joint Task List Update Process*. By Richards, B. Ottawa: Canadian Government, 2001.

Canada. Defence Research and Development Canada (DRDC). *Cap DEM – Towards a capability engineering process*. By Lam, S et al. Ottawa: DRDC, 2005.

Canada. Defence Research and Development Canada. *Force Planning Scenarios: Methodology, Experiences & Lessons*. Ottawa: DRDC, 2010.

Canada. Defence Research and Development Canada. *Modelling and Simulation and Capability Engineering Process*. By Mokhatari, M et al. Ottawa: DRDC, 2006.

Canada. Defence Research and Development Canada. *Unifying Capability Integration Analysis*. By Kerzer, L.F. Ottawa: DRDC, 2011.

Periodicals, research papers & theses

Bercuson, D. "Defence Strategy Remains Unclear." *Legion Magazine*, Sept/Oct (2008):13.

Blakely, Billyard et al. "Operational Research Tools supporting Force Development Process for Canadian Armed Forces." *Information & Security*, Vol 23, No1 (2009): 81-89.

McDonald, G. "The Canada First Defence Strategy – One Year Later." *Canadian Defence & Foreign Affairs Institute*, October (2009): 1-21.

Perry, D, Lerhe, E, Hansen, K and Berg, K. "The Canada First Defence Strategy (CFDS)". *Canadian Naval Review*, Winter 2012. Dalhousie University Centre for Foreign Policy Studies. Accessed September 18th, 2013. <http://naval.review.cfps.dal.ca/forum/view.php>

Sloan, E. "Strategic Capability Investment Plan: Origins, Evolution and Future Prospects." *Canadian Defence & Foreign Affairs Institute*, March (2006): 1-28.

Websites & newspaper articles

Defense Technical Information Centre. "A DRDC Management Accountability Framework." Accessed April 3rd, 2013. <http://www.dtic.mil/dtic/tr/fulltext/u2/a539732.pdf>

DRDC. "About Defence R&D Canada." Accessed April 7th, 2013. [http://www.drdc-rddc.gc.ca/drdc/en/about-
apropos/](http://www.drdc-rddc.gc.ca/drdc/en/about-
apropos/)

Canadian Auditor General. "Acquisition of Military Helicopters." Accessed April 3rd, 2013. [http://www.oag-
bvg.gc.ca/internet/English/parl_oag_201010_06_e_34289.html](http://www.oag-
bvg.gc.ca/internet/English/parl_oag_201010_06_e_34289.html)

Canadian Department of National Defence. "Archived Defence Policy." Accessed March 22nd, 2013. http://www.forces.gc.ca/admpol/defence_policy_archives-eng.html

Canadian Department of National Defence. "Defence Research and Development Canada." Accessed April 3rd, 2013, <http://www.vcds-vcemd.forces.gc.ca/sites/page-eng.asp?page=10415>

Treasury Board of Canada. "Integrated Risk Management Framework." Accessed April 3rd, 2013. <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?section=text&id=12254>

Treasury Board of Canada. "International References." Accessed March 28th, 2013. [http://www.tbs-
sct.gc.ca/maf-crg/ir-ri-eng.asp](http://www.tbs-
sct.gc.ca/maf-crg/ir-ri-eng.asp)

Canadian Government. "Management Accountability Framework." Accessed May 6th, 2013. [http://www.tbs-
sct.gc.ca/maf-crg/index-eng.asp](http://www.tbs-
sct.gc.ca/maf-crg/index-eng.asp)

Canadian Armed Forces. "Marine Security Operations Centres Project." Accessed March 10th, 2013. <http://msoc-cosm.gc.ca/doc/bd-di/pss-epp/overview-apercu-eng.asp>

Treasury Board of Canada. "National Defence." Accessed April 3rd, 2013. [http://www.tbs-sct.gc.ca/dpr-
rnr/2006-2007/inst/dnd/dnd05-eng.asp](http://www.tbs-sct.gc.ca/dpr-
rnr/2006-2007/inst/dnd/dnd05-eng.asp)

Canadian Auditor General. "Recommendations." Accessed April 10th, 2013. [http://www.oag-
bvg.gc.ca/internet/English/parl_oag_200905_05e_32518.html](http://www.oag-
bvg.gc.ca/internet/English/parl_oag_200905_05e_32518.html)

Staples, S. "Budget Submissions: Rideau Institute." Accessed April 18th, 2013. [http://www.rideauinstitute.ca/wp-content/uploads/2011/10/Pre-Budget-Submission-2011-Rideau-
Institute.pdf](http://www.rideauinstitute.ca/wp-content/uploads/2011/10/Pre-Budget-Submission-2011-Rideau-
Institute.pdf)

S Staples. "Policy Briefing". *Hill Times*, 30th May 2011. Accessed April 18th, 2013. <http://www.hilltimes.com/policy-briefing/2011/05/30>

United States Bibliography

Books

Bolt, P.J, Colletta, D.V, Collins G and Shackelford, J. *American Defense Policy*. Baltimore: The John Hopkins University Press, 2005.

Davis, P.K, Kugler, R.L and Hillestad, R. *Strategic Issues and Options for the Quadrennial Defense Review (QDR)*. Washington: Rand Corporation, 1997.

Government & other official documents

United States. United States Congress - Library of Congress, Congressional Research Service. *Quadrennial Defense Review (QDR): Background, Process, and Issues*. By Brake, J, D. Washington: United States Government Printing Office, June 21st, 2001.

United States. Department of Defense. Joint Chiefs of Staff. *JCIDS Manual*. Washington: United States Government Printing Office, 2011.

United States. Department of Defense - Joint Chiefs of Staff. *National Military Strategy 2011: Redefining Americas Military Leadership*. Washington: United States Government Printing office, 2011.

United States. Department of Defense. *Quadrennial Defense Strategy 2010*. Washington: United States Government Printing Office, 2010.

United States. President of the United States. *National Security Strategy 2010*. Washington: White House. 2010.

Periodicals, research papers & theses

Caudle, S. "Homeland Security Capabilities Based Planning: Lessons from the Defense Community." *Homeland Security Affairs*, Vol 1, No 2: Fall (2005): 1-30.

Durrell-Young, T. "Capabilities-Based Defense Planning: Techniques Applicable to NATO and Partnership for Peace Countries." *PfP Consortium Quarterly Journal*, Spring/Summer (2006): 35-54.

Eaglen, M. "America needs a permanent independent panel to stress test the Pentagons QDR strategy." *American Enterprise Institute Journal*, November (2012): 1. Accessed May 6th, 2013. <http://www.aei.org/article/foreign-and-defense-policy/defense/america-needs-a-permanent-independent-panel-to-stress-test-the-pentagons-qdr-strategy/>

Gates, R. "A Balanced Strategy." *Foreign Affairs*, January/February (2009): 1. Accessed March 19th, 2013. <http://www.foreignaffairs.com/articles/63717/robert-m-gates/a-balanced-strategy>

Gordon, J. "QDR – Analysing the major defense review process". Phd diss, George mason University, 2005.

Grant, R. "Not Just Another Post Cold War Budget Drill." *Air Force Magazine*, Vol 94, No 9, (2011).1. Accessed May 6th, 2013. <http://www.airforcemag.com/MagazineArchive/Pages/2011/September%202011/0911drill.aspx>

Hadley, S.J and Perry, W.J. "The QDR in Perspective: Meeting America's National Security Needs In The 21st Century – The Final Report of the QDR Independent Panel." *United States Institute of Peace* (2010): 1-155. Accessed March 6th, 2013. <http://www.usip.org/files/qdr/qdrreport.pdf>

Kiefer, Cdr T. "Capabilities Based Planning & Concepts." Paper presented to Joint Chiefs of Staff, Washington DC, 22nd September and 5th November 2005.

Kruger, N R. "The 2011 National Military Strategy: Resetting a Strong Foundation." *National Security Watch*, NSW11-2, (2011): 1-6.

Mahnken, T.G. "Striving for Balance in National Defense". *Proceedings Magazine: US Naval Institute*, Vol 136, June (2010):1. Accessed March 7th, 2013. <http://www.usni.org/magazines/proceedings/2010-06/striving-balance-defense>

O'Hanlon, M. "QDR 2010: Implementing the new Path for America's Defense". Paper presented at symposium hosted by Institute for National Strategic Studies, Washington 10th-11th March, 2010.

Popescu, I.C. "The Last QDR? What the Pentagon should learn from Corporations about strategic planning" *Armed Forces Journal*, November 2011. Accessed March 7th, 2013. <http://armedforcesjournal.com/search?query=the+last+qdr%3F>

Tomes, R. "Defense Strategy and Military Planning for an Era of Persistent Conflict." *Small Wars Journal*, January 26th, (2011): 1. Accessed May 7th, 2013. <http://smallwarsjournal.com/jrnl/art/defense-strategy-and-military-planning-for-an-era-of-persistent-conflict>

Walker, S.K. "Capabilities Based Planning – How It Is Intended To Work And Challenges To Its Successful Implementation", MA diss, United States War College, Carlisle Barracks, Pennsylvania, March, 2005.

Websites & newspaper articles

American Forces Press Service. "QDR Panel Calls For More Force Structure Changes." Accessed March 6th, 2013. <http://www.globalsecurity.org/military/library/news/2010/08/mil-100804-afps03.htm>

Centre for American Security. "Vision Meets Reality: 2010 QDR and 2011 Defense Budget." Accessed March 29th, 2013. <http://www.cnas.org/node/4054>

Cordesman, A .H. Centre for Strategic and International Studies. "Creating Reality-Based Strategy, Planning, Programming and Budgeting." Accessed November 15th, 2012. <http://csis.org/us-defense-planning>

Council on Foreign Relations. "Rebalancing and Reforming Defense: QDR Review 2010." Accessed May 6th, 2013. <http://www.cfr.org/defense-policy-and-budget/rebalancing-reforming-defense-quadrennial-defense-review-2010/p21363>

Flournot, M. US Department of Defense. "Quadrennial Defense Review: The Contested Commons." Accessed April 3rd, 2013. <http://www.defense.gov/qdr/flournoy-article.html>

Ghallagher, M.J. US Army War College. "The Complexity Trap." Accessed March 15th, 2013. www.carlisle.army.mil/usawc/.../Articles/.../Gallagher_Geltzer_Gorka

McGowan, D.W. Defense Technical Information Centre. "Improving the Current DHS Capabilities Framework." Accessed September, 2013. <http://www.dtic.mil/dtic/search/tr/>

North Atlantic Treaty Organisation. "The NATO Defence Planning Process." Accessed January 12th, 2013. http://www.nato.int/cps/en/natolive/topics_49202.htm

United States Department of Defense. "Defense Acquisition Board." Accessed April 15th, 2013. <https://dap.dau.mil/glossary/Pages/1738.aspx>

United States Department of Defense. "Legislation Describing a National Defense Panel for 2009/2010HR2647, Section 1035." Accessed March 16th, 2013. <http://www.comw.org/wordpress/dsr/legislation-describing-a-national-defense-panel-for-20092010-hr2647-section-1035>

United States Department of Defense "QDR 101 – What you should know." Accessed March 1st, 2013. http://www.defense.gov/qdr/QDR_101_FACT_SHEET_January_2010.pdf

United States Department of Defense. "QDR Independent Review Panel." Accessed 14th April, 2013. <http://www.usip.org/programs/initiatives/quadrennial-defense-review-independent-panel>

United States Government. "Sustaining US Global Leadership: Priorities for 21st Century Defense." Accessed April 8th, 2013. http://www.defense.gov/news/defense_strategic_guidance.pdf

US Army News. "Military Budget." Accessed March 5th, 2013. http://www.armytimes.com/news/2010/02/military_2011_budget_QDR_020110w/

United Kingdom Bibliography

Books

Brown, D. *The Development of British Defence Policy*. Farnham: Ashgate Publishing, 2010.

Dillon, G.M. *Defence Policy Making: A Comparative Analysis*. Leicester: Leicester University Press, 1988.

Government & other official documents

United Kingdom. Office of the Prime Minister. *National Security Strategy (NSS) 2008*. London: HM Stationery Office, 2008.

United Kingdom. Office of the Prime Minister. *National Security Strategy (NSS) 2010 – A Strong Britain in an Age of Uncertainty*. London: HM Stationery Office, 2010.

United Kingdom. Ministry of Defence. *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review (SDSR)*. London: HM Stationery Office, 2010.

United Kingdom Ministry of Defence. *Defence Reform: An independent report into the structure and management of the Ministry of Defence*. London: HM Stationery Office, 2011.

United Kingdom. Ministry of Defence. *Global Strategic Trends - Out to 2040, and Future Character of Conflict*. London: United Kingdom Government. 2009.

United Kingdom. House of Commons. *Submission to Strategic Defence and Security Review, 2010*. Accessed in October 2012 with access updated in May 2013.

<http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/761we05.htm>

<http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>

<http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/163904.htm>

<http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/1639/1639.pdf>

Periodicals, research papers & theses

Acronym Institute. "UK White Papers on Defence and Foreign Policy." *Disarmament Diplomacy*, Issue 75, January/February (2004): 1-6.

Chalmers, M. "Unbalancing the Force – Prospects for UK Defence after the SDR." *RUSI - Future Defence Review*, WP9-November (2010): 2.

Clarke, Professor M. "Preliminary RUSI Briefing: The National Security Strategy 2010." *RUSI – The National Security Strategy 2010*: 1. Accessed April 18th 2013.

http://www.rusi.org/analysis/commentary/ref%3AC4CBC6D8637AB7/#.Uly8poz2_cs

Crowcroft, R. "SDSR in focus – the Strategic Defence Review and the future of Britain as an international power." *Defence Viewpoints*, 12th August 2010:1. Accessed May 1st, 2013.

<http://www.defenceviewpoints.co.uk/articles-and-analysis/sdsr-in-focus-the-strategic-defence-review-and-the-future-of-britain-as-an-international-power>

DSTL and Jacobs Sula. "Strategy & Capability CDE Call - Exemplar A: Cross Defence Lines of Development." Paper for public release by UK Ministry of Defence, 2011.

Edmunds, T. "British civil-military relations and the problem of risk." *International Affairs*, 88 (2012): 265-282. Accessed May 3rd, 2013,

http://www.chathamhouse.org/sites/default/files/public/International%20Affairs/2012/88_2/88_2edmunds.pdf

Ibrahim, A. "The Eight Reasons why the UK's SDSR must not savage its military." *Institute for Social Policy and Understanding Blog*, 15th October 2010. Accessed April 20th, 2013. <http://www.huffingtonpost.com/azeem-ibrahim/eight-reasons-why-the-uk-s-763117.html>

Jackson, Sir M. "A Comprehensive Approach." *Defence Management Journal*, October 2009. Accessed April 19th 2013, http://www.defencemanagement.com/feature_story.asp?id=12559

Jackson, Sir M. "Shaping the future of Defence". *Defence Management Journal*, December 2009. Accessed 15th October, 2013. <http://www.paconsulting.com/introducing-pas-media-site/highlighting-pas-expertise-in-the-media/opinion-pieces-by-pas-experts/defence-management-journal-shaping-the-future-of-defence-december-2009/>

Kerr, C. Phaal, R and Probert, D. "A Framework For Strategic Military Capabilities in Defense Transformation." Paper presented to the 11th International Command and Control Symposium, De Vere University Arms, Cambridge, United Kingdom, September 26th, 2006.

Kirkpatrick, D. "The Next UK Defence Review Must Do Better". *RUSI*. Autumn/Winter (2011): 1-5.

Prins, G. "The British Way of Strategy-Making". *RUSI – Occasional Paper*, October (2011): 1. Accessed May 5th, 2013, http://www.rusi.org/downloads/assets/The_British_Way_of_Strategy_Making.pdf

Prins, G - Blog. <http://blogs.lse.ac.uk/politicsandpolicy/archives/17595>

Websites & newspaper articles

Brookes, G, Wing Commander. "Defence Select Committee submission - August 2011." Accessed May 8th, 2013. <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>

Chalmers, G. "Defence Select Committee submission - August 2011." Accessed May 7th, 2013. <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm>

Edmonds, A. "Defence Select Committee submission - August 2011." Accessed May 7th, 2013. <http://www.scribd.com/doc/52675997>

Jacobs Sula. "Coherence Across DLOD." Accessed May 7th, 2013. http://www.jacobssula.co.uk/coherence?parent=systems_engineering

Naval Technology. "Global Combat Ship." Accessed May 2nd, 2013. <http://www.naval-technology.com/projects/global-combat-ship-gcs-programme/>

"The Emperors Clothes." *The Economist*, March 3rd, 2011. Accessed March 3rd, 2013. <http://www.economist.com/node/18289272>

United Kingdom Government. "Spending Review." Accessed May 2nd, 2013. http://www.hm-treasury.gov.uk/spend_index.htm

United Kingdom Ministry of Defence. "Defence Equipment Budget Rises as Future Force Takes Shape." Accessed May 5th, 2013. <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/DefenceEquipmentBudgetRisesAsFutureForceTakesShape.htm>

United Kingdom Ministry of Defence. "Defence Secretary unveils blueprint for Defence Reform." Accessed May 1st, 2013. <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/DefenceSecretaryUnveilsBlueprintForDefenceReform.htm>

United Kingdom Ministry of Defence. "MoD's Major Projects Review Board stands up." Accessed May 2nd, 2013 <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/ModsMajorProjectsReviewBoardStandsUp.htm>

United Kingdom Ministry of Defence. "MOD sets out plans to ensure investment in state of the art defence equipment." Accessed May 5th, 2013. <http://www.mod.uk/DefenceInternet/DefenceNews/EquipmentAndLogistics/ModSetsOutPlansToEnsureInvestmentInStateoftheartDefenceEquipment.htm>

United Kingdom Ministry of Defence. "UK Defence Infrastructure Organisation." Accessed June 3rd, 2012, www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/EstateAndSustainableDevelopment/SustainableProcurementsOnTheModEstate.htm

United Kingdom Ministry of Defence - Science and Technology Laboratory (Dstl), Strategy & Capability CDE Cell. "Cross Defence Lines of Development." Accessed May 2nd, 2013. <https://www.dstl.gov.uk/>

Singapore Bibliography

Books

Huxley, T. *Defending the Lion City: The Armed Forces of Singapore*. St. Leonards, N.S.W: Allen & Unwin, 2000.

Crosby, R. *New Zealand Special Air Service- The First 50 Years*. Auckland: Viking Press, 2009.

Inglis, F. *The Cruel Peace – Living Through The Cold War*. London: Aurum Press, 1991.

Kuan, Yew. L. *The Singapore Story: Memoirs of Lee Kuan Yew*. Singapore: Singapore Press Holdings. 1998.

Vasu, N and Loo B. "National Security and Singapore: An Assessment" in *Management of Success – Singapore Revisited*, edited by Terrence Chong, 462-488. Singapore: ISEAS Publishing, 2010.

Davis, P,K. "Uncertainty Sensitive Planning" in *New Challenges, New Tools for Defense Decision Making*, edited by Stuart, E. Johnson, 131-155. Santa Monica: Rand, 2003.

Government & other official documents

Republic of Singapore. Ministry of Defence. *The Fight Against Terror – Singapore's National Security Strategy*. Singapore: National Security Co-ordination Centre, 2004.

Republic of Singapore. Department of Statistics. *Year book of Statistics-Singapore: 2012*. Singapore: Government of Singapore, 2012.

Republic of Singapore. Ministry of Defence. *Defending Singapore in the 21st Century*. Singapore: Ministry of Defence, 2000.

Periodicals, research papers and theses

Gautam, P.K. "Relevance of Kautilya's Arthashastra." *Strategic Analysis*, Vol 37, No 1 (2013): 21-28. Accessed 4th April, 2013. http://www.idsa.in/strategicanalysis/37_1/RelevanceofKautilyasArthashastra

Guan, A.C. "Malayasia, Singapore and the Road to the Five Power Defence Arrangement (FPDA), July 1970- November 1971." *War and Society*, Vol 30. No 3. October (2011): 207-25.

Hinata-Yamaguchi, R. "Singapore's Military Modernisation." *The Diplomat*, April 27th 2012:1. Accessed 29th January 2013. <http://thediplomat.com/new-leaders-forum/2012/04/27/singapore%E2%80%99s-military-modernization/>

Kaplan, G. "The Republic of Singapore Navy." *The Navy Magazine - Navy League of Australia*. Accessed April 18th, 2013. http://navyleag.customer.netspace.net.au/fc_07ros.htm

Kwah, A & Loo, B. "Examining the Defence Industrialisation – Economic Growth Relationship: the Case of Singapore." *Institute of Defence and Strategic Studies*, Paper 70, July (2004): 1-32.

LG Neo Kian Hong, Chief of Defence Force, SAF, "A Reader for Leadership Development," *POINTER*, SAFTI Military Institute, Monograph No. 9, (2012): v.

LG Neo Kian Hong, Chief of Defence Force. "Republic of Singapore, Leading in the Third Generation". *POINTER*, SAFTI Military Institute, Monograph No. 9, A Reader for Leadership Development. 2012: 1.

Leong, L CPT. SAFTI Military Institute. "Rethinking The British Legacy - British Withdrawal And Origins Of The Singapore Armed Forces, 1966 - 1971". *Pointer*. Vol 37, No 2 (2011):22-32.

Mathews, R and Zhang Yan, N. "Small Country 'Total Defence': A case study of Singapore", *Defence Studies*, Vol 7, Issue 3 (2007). 1-6.

Pye, L.W. "Review of - The Singapore Story: Memoirs of Lee Kuan Yew", *Foreign Affairs*, March/April, (1999): 1. Accessed April 8th, 2013. <http://www.foreignaffairs.com/articles/54766/lucian-w-pye/the-singapore-story-memoirs-of-lee-kuan-yew>

Tan, A, T.H. "Singapore's Defence: Capabilities, Trends and Implications." *Contemporary Southeast Asia*, Vol 21, No 3 (1999). 4.

Tan, A. "Singapore's Defence Policy in the new Millennium." *Strategic and Defence Studies Centre - Working Paper No 322*. Canberra, ANU (1998): 2.

Teo Chee Hean. "Meeting the Challenges of Singapore Defence", *Military Technology*, No 2(2010): 16-18.

Vreeken, J. "Singapore's Burgeoning Armed Forces – A Steadying Force." *The international Political Review* February (2012):1. Accessed April 3rd, 2013. <http://www.theinternationalpoliticalreview.com/singapores-burgeoning-armed-forces-a-steadying-force/>

Weichong, O. "Singapore's Total Defence", *Eurasia Review*, (February 24th, 2011): 1. Accessed March 2013, <http://www.eurasiareview.com/24022011-singapore%E2%80%99s-total-defence-shap>

Websites & newspaper articles

Global Firepower. "Singapore Military Strength." Accessed April 11th, 2013. http://www.globalfirepower.com/country-military-strength-detail.asp?country_id=Singapore

Lee Kuan Yew. "Thousands Escape 'Enemy' Air Raids." *Straits Times*, 3rd May, 1987. Accessed March 16th, 2013. <http://news.google.com/newspapers?nid=1309&dat=19880216&id=Y6RUAAAIAIAJ&sjid=Y5ADAAAAIAIAJ&pg=4760,90879>

Republic of Singapore Ministry of Defence. "About the third Generation SAF." Accessed April 4th, 2013. http://www.mindef.gov.sg/content/imindef/mindef_websites/topics/3g/home.html

Republic of Singapore Ministry of Defence. "Organisational Structure." Accessed April 12th, 2013. http://www.mindef.gov.sg/imindef/mindef_websites/atozlistings/army/About_Us/Org_Structure.html

Republic of Singapore Ministry of Defence. "Showcasing the Army's Capabilities." Accessed 18th April, 2013. http://www.mindef.gov.sg/imindef/mindef_websites/atozlistings/army/army_news/News_Archive/2010/nov2010/CSS_TP.html

Republic of Singapore. "DSTA." Accessed 5th May, 2013. <http://www.dsta.gov.sg/>

Republic of Singapore. "Enlistment Act – Chapter 93." Accessed April 2nd, 2013. <http://statutes.agc.gov.sg/aol/search/display/view.w3p;page=0;query=DocId%3A7c7b1aab-8403-4443-b322-0cba08be5d45%20%20Status%3Ainforce%20Depth%3A0;rec=0>

Republic of Singapore PUB. "The Singapore Water Story." Accessed 7th August, 2012. <http://www.pub.gov.sg/water/Pages/singaporewaterstory.aspx>

Republic of Singapore. "Total Defence." Accessed April 2nd, 2013. http://www.totaldefence.sg/imindef/mindef_websites/topics/totaldefence/home.html

Republic of Singapore. "What is Total Defence?" Accessed April 2nd, 2013. http://www.totaldefence.sg/imindef/mindef_websites/topics/totaldefence/about_td.html

Shipping Singapore, COO. Hong Kong. "The Shipping Industry in Singapore." Accessed April 8th, 2013. <http://www.coosupport.com/shipping/singapore/overview>

"Singapore to send 192 personnel to Iraq." *Agence France Press*, October 23rd, 2003. Accessed 5th February, 2013. <http://www.singapore-window.org/sw03/031027af.htm>

United States Energy Information Agency, Washington. "World Oil Transit Choke Points - August 22nd 2012." Accessed April 12th, 2013. http://www.eia.gov/emeu/cabs/world_oil_transit_chokepoints/background.html

World Bank. "Military Expenditure as a % of GDP." Accessed 30th January, 2013. <http://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS>

Yi-Jin Lee, Major "Singapore's Defense Policy: Essential or Excessive?" Accessed 28th January, 2013. http://www.airpower.au.af.mil/apjinternational/apj-c/2011/2011-1/2011_1_11_singapore-E.pdf

Finland Bibliography

Books

Edwards, R. *White Death: Russia's War on Finland 1939–40*. London: Weidenfeld & Nicolson, 2006.

Engle, E, Paananen, E and Paananen, L. *The Winter War – The Soviet Attack on Finland 1939-40* Mechanicsburg: Stackpole Books, 1973.

Grier, Howard. *Hitler, Dönitz, and the Baltic Sea: the Third Reich's last hope, 1944–1945*. Annapolis: US Naval Institute Press, 2007.

Lunde, H.O. *Finland's War of Choice – The Troubled German/Finnish Coalition in WW11*. Haverton: Casemate Publishers, 2011.

Sallinen, A. "Modernising the Finnish Defence Force – Combining Tradition with Cost Efficiency and Internationalisation" in *Denationalisation of Defence – Convergence and Diversity*, edited by Jaane Harland Matlary and Oyvind Osterud, 157-181. Aldershot: Ashgate Publishing, 2007.

Tomas, R. *Cold Will: The Defense of Finland* (1st ed). London: Brassey's Defence Publishers, 1980.

Vehviläinen, O. *Finland in the Second World War: Between Germany and Russia*. New York: Palgrave, 2002.

Government & other official documents

Finland. Finnish Prime Minister's Office. *Finnish Security and Defence Policy 2009*. Helsinki: Prime Minister's Office Publications, 13/2009.

Finland. Finnish Ministry of Defence. *The Security Strategy for Society, 2010*. Helsinki: Vammalan Kirjapaino, 2010.

Periodicals, research papers and theses

Agius, C. "Reaching a Vanishing Point: Reflections on the future of neutrality norms in Sweden and Finland." *Co-operation and Conflict*, June (2012): 271-284. Accessed April 23rd, 2013.

<http://cac.sagepub.com/content/46/3/370.short>

Aikio, H, Col G.S. "Finnish Defence Forces in Transformation." *Military Power Revue*, (Nr 2/2009):44-55.

Dragomir, E. "To Be Or Become European - Westernising Narratives In Post Cold War Finland." *Romanian Journal for Baltic and Nordic Studies*, Issue 1 (2009): 31-50. Accessed April 30th, 2013. <http://www.cceol.com>

Heimo, A. "Local interpretations of the 1918 Finnish Civil War." Phd diss University of Turku, Finland, 2009.

<http://www.hum.utu.fi/oppiaineet/folk/henkilokunta/tutkijatohtoriSA/summary1918.pdf>

Kari, A. "Russification in Estonia and Finland Before 1917." *Faravid*, Vol 28, (2004): 181–194.

Lapczynski, M. "Keeping All Doors Open ... Neutrality and Non Alignment in Post Cold War Finland". MA diss, Central European University, 2009. Accessed 8th May, 2013.

http://www.etd.ceu.hu/2009/lapczynski_marcin.pdf

Salminen, P, Major General. "Finland's Comprehensive and Military Defence doctrines responding to emerging Threats and new Technologies." Paper presented at OSCE High Level Doctrine Seminar – Technological Changes, May 25th, 2011. Accessed May 7th, 2013, <http://www.osce.org/fsc/78104>

Websites & newspaper articles

123RF. "Finnish Military Academy Celebrates 200th Anniversary." Accessed May 2nd, 2013, http://www.123rf.com/photo_12503995_finland--circa-1979-a-stamp-printed-in-the-finland-shows-old-school-hamina-academy-flag-200th-annive.html

Botticelli, P. "Finland's Relations with the Soviet Union, 1940-1986." Accessed May 7th, 2013.

<http://www.loyno.edu/~history/journal/1985-6/documents/FinlandsRelationswiththeSovietUnion1940-1986.pdf>

"Defence Forces Phasing Out Thousands of Ageing Weapons." *Helsingin Sanomat*, April 17th, 2013. Accessed May 2rd, 2013.

<http://www.hs.fi/english/article/Defence+Forces+phasing+out+thousands+of+ageing+weapons/1135265132950>

Finnish Defence Force. "The Finnish Defence Forces (FDF)." Accessed May 5th, 2013.

http://www.puolustusvoimat.fi/en/defence_Forces/front_Page/?urile=wcm%Apath3A/enpuolustusvoimat.fi/Puolustusvoimat.fi_en/Defence_Forces/Front_page/

Frilund, G. "The Final War – The Swedish Russian War of 1808-09." Accessed May 4th, 2013.

<http://www.multi.fi/~goranfri/index.html>

Government of Finland. "Finland's Participation in UN Peacekeeping Missions." Accessed May 7th, 2013. <http://formin.finland.fi/public/default.aspx?nodeid=32296&contentlan=2&culture=en-US>

Government of Finland. "Share of Defence Budget of GDP." Accessed May 3rd, 2013. <http://www.defmin.fi/?l=en&s=122>

North Atlantic Treaty Organisation. "The Partnership for Peace Programme." Accessed May 6th, 2013. http://www.nato.int/cps/en/natolive/topics_50349.htm

World Bank. "Military Expenditure: % of GDP." Accessed May 3rd, 2013. <http://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS>

World Bank. "Population of Finland." Accessed May 7th, 2013. <http://www.worldbank.org/>