The Securitisation of Climate Change in the Australian political-military sector with a comparison to the United States

Author:
Thomas, Michael

Publication Date:
2016

DOI:

License:

The Securitisation of Climate Change in the Australian political-military sector with a comparison to the United States

Michael Durant Thomas

A thesis in fulfillment of the requirements for the degree of
Doctor of Philosophy

School of Humanities and Social Sciences

Faculty of UNSW Canberra

June 2016

THE UNIVERSITY OF NEW SOUTH WALES
Thesis/Dissertation Sheet

Surname or Family name: Thomas

First name: Michael   Other name/s: Durant

Abbreviation for degree as given in the University calendar: PhD

School: School of Humanities and Social Sciences   Faculty: UNSW Canberra

Title: The securitisation of climate change in the Australian political-military sector with a comparison to the United States

Abstract

This thesis comparatively examines the process of climate securitisation within the Australian and United States (US) political-military sectors between 2003 – 2013. Drawing on established securitisation frameworks ("Copenhagen" and "Paris" Schools), the thesis used a combination of software-assisted techniques and manual qualitative content analysis to systematically analyse more than 3,500 speech-acts and strategic policies. Analysis focused on how the political-military sectors contextually and temporally framed climate change and identified which areas of the political-military bureaucracies were active in their climate response. The research found that the Australian Defence Force (ADF) was not a climate-securitising actor and that its response to climate change was mediated by the heightened politicisation of climate change. Unlike the US, the ADF failed to adopt substantive climate responses and this led to a minimalist climate strategy. The thesis argues that, in Australia, this constituted a strategic blind spot and identified the difficulties of an avowedly apolitical institution responding to a politically partisan security issue. This situation contrasted somewhat with the US, where a similarly divided body politic nevertheless united to legislate for the US military to analyse and prepare for the national security impacts of climate change. Given a degree of bi-partisan political authority to act, the US military undertook sweeping reviews that resulted in climate change becoming more mainstreamed than occurred in the ADF. By 2013, the US military had published a series of prominent climate change documents that represented the cornerstones of a more enduring strategic response. Beyond politics, the US military had other reasons to act beyond the expectations of the ADF. These included: increasing its force-posture in a climate changed Arctic; securing its global network of bases and infrastructure from climate change; and as an opportunity to consolidate its position as the pre-eminent global military power in an era of rapid environmental, socio-political and technological change. Through understanding the process of climate securitisation in the Defence sector, this thesis extends existing securitisation theory, proposes a new methodology for analysing speech-acts and provides a benchmark from which researchers, policy makers and strategic planners might develop more detailed and comprehensive climate responses.

FOR OFFICE USE ONLY   Date of completion of requirements for Award:

Table of Contents

Originality Statement

'I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree or diploma at UNSW or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by others, with whom I have worked at UNSW or elsewhere, is explicitly acknowledged in the thesis. I also declare that the intellectual content of this thesis is the product of my own work, except to the extent that assistance from others in the project's design and conception or in style, presentation and linguistic expression is acknowledged.'

Signed…………………..

Date……………………..

Copyright Statement

'I hereby grant the University of New South Wales or its agents the right to archive and to make available my thesis or dissertation in whole or part in the University libraries in all forms of media, now or here after known, subject to the provisions of the Copyright Act 1968. I retain all proprietary rights, such as patent rights. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation. I also authorise University Microfilms to use the 350 word abstract of my thesis in Dissertation Abstract International (this is applicable to doctoral theses only). I have either used no substantial portions of copyright material in my thesis or I have obtained permission to use copyright material; where permission has not been granted I have applied/will apply for a partial restriction of the digital copy of my thesis or dissertation.'

Signed…………………..

Date……………………..

Authenticity Statement

'I certify that the Library deposit digital copy is a direct equivalent of the final officially approved version of my thesis. No emendation of content has occurred and if there are any minor variations in formatting, they are the result of the conversion to digital format.'

Signed…………………..

Date……………………..

Acknowledgements

This thesis owes itself entirely to those that have supported me along the way.

To my academic supervisors, Dr. Gavin Mount and Associate Professor Stuart Pearson. Gavin, thank-you for your continuous encouragement, unbounded enthusiasm, patience ('Michael, it's a journey') and for taking a chance on an unknown part-time student working remote from the stimulus of campus life. Without you, this thesis would not have gotten legs. To Stuart, thank-you for being a great mentor. Without your steady-hand, experience and precise interventions in moments-of-crisis this thesis would simply not have been possible. You nudged it in crucial directions before it left the rails.

The Australian Defence Force has also been instrumental. On the one hand, while this thesis adopts a critical perspective on ADF climate policy, it remains an institution open to strong debate and passionate ideas. Cheryl Durrant and Jane Holloway from the ADF Global Change and Energy Sustainability Initiative are firmly in this tradition and have been particularly encouraging of this thesis and injecting policy relevant discourse on the subject within the ADF. Likewise, I've been fortunate to have had timely encouragement, informal discussions and inspiration on the subject with Bruce Thom and David Karoly from the Wentworth Group of Concerned Scientists, Anthony Bergin of the Australian Strategic Policy Institute, Admiral Chris Barrie (rtd) and Alix Pearce of the Climate Council. It would also be remiss not to mention one of my early academic mentors, Mr Gerry Walsh. Although he disagreed about the importance of climate change, he inspired me with his indefatigable approach to learning. To UNSW staff Bernadette McDermott, Craig Stockings and Elvira Berra thank-you for holding my hand through the cavernous world of university administration.

Finally, I would like to thank my family. My mother (Marilyn) and father (Neil) who always encouraged me to ask 'why'? To my in-laws, Judy and Denis who selflessly baby-sat our tots as I headed off to the local library to work on the thesis. Words cannot express my ever-lasting appreciation. To Jodie, my wife, who rode the highs and lows. Thanks to your love, your encouragement and patience. And lastly, to our bubs Patrick and Elsie-Mae. I'm learning more from you both every day. I hope I inspire you, as you inspire me.

Abbreviations and Symbols

ADF	Australian Defence Force
ADM	Admiral
ALP	Australian Labor Party
ARRA	American Recovery and Reinvestment Act
AU	Australia
BAU	Business-As-Usual
BMU	German Ministry for Environment, Nature Conservation and Nuclear Safety
CDF	Chief of Defence Force (Australia)
CJCS	Chairman of the Joint Chiefs of Staff
CNO	Chief of Naval Operations (United States)
COIN	Counter Insurgency
COP	Conference of the Parties
CPRS	Carbon Pollution Reduction Scheme
CSP	A Cooperative Strategy for the 21st Century Seapower
DoD	Department of Defense (US) or Department of Defence (Australia)
DoDI	Department of Defense Instruction
DoE	Department of Environment
DSG	Defence Support Group
DSTO	Defence Science Technology Organisation
EEZ	Exclusive Economic Zone
EIT	Economies-In-Transition
ELF	Enhanced Land Force
ENSO	El Niño Southern Oscillation
EO	Executive Order
EPA	Environmental Protection Agency
ESSP	Earth System Science Partnership
EU	European Union
FMOC	Future Maritime Operating Concept
FOI	Freedom of Information
FPR	Force Posture Review
FY	FinancialYear
GDP	Gross Domestic Product
GEHSHA	Global Environmental and Human Security Handbook for the Anthropocene
GFC	Global Financial Crisis
GHG	Greenhouse Gas(es)
GCESI	Global Change and Energy Sustainability Initiative
GMACCC	Global Military Advisory Council on Climate Change
HADR	Humanitarian Aid and Disaster Relief
HDI	Human Development Index
HMAS	Her Majesty's Australian Ship
HNA	Hardened and Networked Army
ICAO	International Civil Aviation Organization
ICSU	International Council for Science
IGBP	International Geosphere-Biosphere Programme
IHDP	Human Dimensions Programme on Global Environmental Change
INDC	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change

IPCC AR4	Intergovernmental Panel on Climate Change Fourth Assessment Report
IPCC AR5	Intergovernmental Panel on Climate Change Fifth Assessment Report
IR	International Relations
IT	Information Technology
MDG	Millennium Development Goals
MAB	Military Advisory Board
MINDEF	Minister of Defence
MoD	Ministry of Defence (UK)
NCCO	Naval Climate Change Coordination Office
NDS	National Defense Strategy
NGO	Non-Government Organisation
NMS	National Military Strategy
NSS	National Security Strategy
OPEC	Organisation of Petroleum Exporting Countries
PPBE	Planning-Programming-Budgeting-Execution
POM	Program Objective Memorandum
QDR	Quadrennial Defense Review
RAAF	Royal Australian Air Force
RADM	Rear Admiral
RAN	Royal Australian Navy
RAND	(US) Research and Development Corporation
SECDEF	Secretary of Defence
SSPP	Strategic Sustainability Performance Plan
TFCC	Task Force Climate Change
UFC	United Facilities Criteria
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSC	United Nations Security Council
US	United States of America
USAF	United States Air Force
USCENTCOM	United States Central Command
USEUCOM	United States European Command
USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command
USMC	United States Marine Corp
USN	United States Navy
WCRP	World Climate Research Programme
WBGU	German Advisory Council on Global Change
WMD	Weapons of Mass Destruction
WWF	World Wildlife Fund

List of Figures

List of Tables

Related Publications and Presentations Arising from This Thesis

List of Publications

Thomas, Michael. 2011. "Climate Change and the ADF." *Journal of the Australian Profession of Arms*, no. 185: 34 – 44. Accessed July 15, 2012. http://www.adfjournal.adc.edu.au/UserFiles/issues/185%202011%20Jul_Aug.pdf.

Thomas, Michael. 2012. "Assessing the Risk of Global Climate Change on the ADF." *E-International Relations*. Accessed October 12, 2013. http://www.e-ir.info/2012/03/08/assessing-the-risk-of-global-climate-change-on-the-australian-defence-force.

Thomas, Michael. 2013. "The Securitisation of Climate Change: A Military Perspective." *Journal of the Australian Profession of Arms*, no. 192: 7 – 18. Accessed June 15, 2014. http://www.adfjournal.adc.edu.au/UserFiles/issues/192%202013%20Nov_Dec.pdf.

Michael Thomas, Jane Holloway and Cheryl Durrant. 2015. "Strategic Military Geography: Climate Change Adaptation and the Military." In *Handbook of Climate change Adaptation*, edited by Walter Leal Filho, 493 – 514. Berlin: Springer. doi 10.1007/978-3-642-38670-1_24.

Thomas, Michael. 2015. "Climate Securitization in the Australian Political-Military Establishment." *Global Change, Peace and Security*, vol. 27, no. 1: 97 – 118. doi:10.1080/14781158.2015.990879.

Chris Barrie, Will Steffen, Alix Pearce, and Michael Thomas. 2015. *Be Prepared: Climate Change, Security and Australia's Defence Force*. Sydney: Climate Council of Australia.

List of Presentations, Conferences

Thomas, Michael and Spencer Edwards. "Climate Change and the ADF." Presentation delivered to the ADFs Global Change and Energy Sustainability Initiative, Canberra, October 2013.

Thomas, Michael. "Climate Change in the Age of Conservatism." Presentation delivered to Kokoda Foundation Future Strategic Leaders Forum, Canberra, December 2013.

Thomas, Michael. "The Securitisation of Climate Change: A Military Perspective." Paper presented at the Sixth Oceanic Conference of International Studies, University of Melbourne, Melbourne, June 2014.

Foreword

My thinking on climate securitisation was first stirred in 2010 when the level of public discourse regarding meaningful action on climate change—both in a domestic and international sense—were in recession. Internationally, the 2009 Copenhagen conference was an abject failure and where the momentum built since the 2007 IPCC Fourth Assessment Report was crushed by geopolitical reality. In microcosm, Australian climate change policy (and politics) underwent similar convulsions. Having been elected to take action on climate change, Prime Minister Kevin Rudd had invested enormous political capital on a successful outcome at Copenhagen. Its failure however, was a contributing factor that saw Rudd renege on introducing his signature climate policy, the Carbon Pollution Reduction Scheme. His fate was sealed when he lost one million votes in a fortnight and was dumped as prime minister in June 2010. The reverberations from this period continue to this day, with climate change remaining a lightning-rod theme in Australian politics.

In this context, I began to consider what the Australian Defence Force (ADF) was doing in relation to climate change. How prepared were ADF capabilities to operate in a climate changed world? How ready was the Defence estate against sea-level rise? What were the strategic energy security considerations for the ADF? How did ADF responses compare to those of our close allies, particularly the United States? Inevitably, these questions led me to securitisation studies and while the analytical framework used within is based on Copenhagen and Paris Schools, I was inspired by the writings of Hans Günter Brauch, Jürgen Scheffran, Úrsula Oswald Spring and others with their concepts of political geo-ecology that challenge traditional political-military orthodoxies and rightly place contemporary security discourse in the far broader context required for the Anthropocene.

Lastly, my perspective is perhaps somewhat unique, in that I come from a scientific *and* a military background (I hold post-graduate degrees in Oceanography and International Relations and served more than twenty-years as an Army officer). Thus, while this thesis documents political change, it tries not to delve, prosaically, into the domestic political intrigue that surrounds climate change. Rather, the focus for this thesis reflects my position as a scientifically informed military professional entering the critical security studies field. In pursuing questions of securitisation, I seek to add valuable conceptual and contextual analysis which might inform political debates involving strategic approaches to climate change.

PART I

INTRODUCTION

Chapter 1: Research Gap, Aim and Analytical Framework

You cannot escape the responsibility of tomorrow by evading it today.

Abraham Lincoln

1.1   Surveying the Research Gap

Climate change is an issue that hardly requires an introduction. In Australia, it has been prominent in federal politics since at least 2006 when it was the number one foreign policy concern and (in 2007) the most important domestic policy priority (Wesley 2012). In 2004, Australian Prime Minister John Howard (2004) declared that climate change was 'one of the major challenges confronting the world this century' and in 2008, his successor, Kevin Rudd, (in)famously labelled it the 'greatest moral, economic and social challenge of our time' (Rudd 2008d). Scholars and the political commentariat alike have variously identified climate change (and its derivative issues) as a major factor at the 2007, 2010 and 2013 Australian federal elections (Macintosh, Wilkinson, and Denniss 2010, Hartcher 2014).

Today, climate change remains a 'serious and pressing problem' for most Australians (Oliver 2015, 1). There are good reasons for this. Since the late 1970s the global scientific community has warned with increasing confidence that Business-As-Usual (BAU) anthropogenic greenhouse gas (GHG) emissions will increase planetary warming 2°C above pre-industrial levels by 2050. The United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report stated, '[h]uman influence on the climate system is clear … Warming of the climate system is unequivocal' (IPCC 2015, 2) and its consequences have been covered by globally prominent sectors *beyond* the scientific community (Stern 2007, Garnaut 2008, Asian Development Bank 2010, World Bank 2013, ICAO 2015, World Vision 2015, International Federation of Red Cross 2015, Pope Francis 2015). Global leaders from Ban Ki-Moon to Barack Obama have repeatedly identified climate change as *the* strategic issue most set to shape this century. At a 2014 global gathering of world leaders prior to that year's G20 summit, President Obama stated:

> For all the immediate challenges that we gather to address this
> week – terrorism, instability, inequality, disease – there's one issue
> that will define the contours of this century more dramatically than

any other, and that is the urgent and growing threat of a changing climate (Obama 2014).

Given the ubiquity of climate change, Australia's political, social, economic and even military sectors cannot be considered exceptional to the effects of climate change. As a major agricultural exporter reliant on stable climatic conditions, with 85 percent of its population and infrastructure clustered along coastal margins and as one of the world's highest per capita GHG emitters situated in a region of under-developed small island states exposed to climatic extremes magnified by El Niño Southern Oscillation (ENSO) events, Australia has been repeatedly cited as being vulnerable to climate change (Pittock 2009). Although many of these risks had previously been documented in a piecemeal fashion, the 2008 *Garnaut Climate Change Review* consolidated and raised them to national prominence for the first time (Garnaut 2008).

The release of the *Garnaut Review* triggered a litany of national, sub-national and sectoral reports that increasingly detailed the impacts of climate change across Australian society and its political economy. A 2011 report by the then Department of Climate Change titled *Climate Change Risks to Coastal Buildings and Infrastructure*, for instance, identified $226 billion in replacement costs for commercial, industrial, road, rail and residential assets in the event of a 1.1m sea level rise (Commonwealth of Australia 2011, 3). A follow-on report in 2014 by the Australian Climate Council, *Counting the Costs: Climate Change and Coastal Flooding*, noted the Australian coastline was 'highly vulnerable' to climate change and emphasised major risks to habitats, tourism, infrastructure, health, wetlands and other ecosystems (Steffen, Hunter, and Hughes 2014, iv). Despite some unevenness, planning for climate change has been undertaken by a wide range of federal, state and local government agencies, including by the police forces and civil emergency services (Commonwealth of Australia 2007b, 2010, Gibbs and Hill 2011, Baker & McKenzie 2011, NCCARF 2013, Victorian Government 2011). Climate change has also increasingly featured across Australia's private sector including the domestic insurance industry (Insurance Council of Australia 2008), the banking sector (Commonwealth Bank 2008, NAB 2015), health professionals (CAHA 2010), biodiversity (Steffen et al. 2009, Williams et al. 2009), the tourism sector (Tremblay et al. 2008) and a myriad of others, even including a climate change vulnerability assessment of the East Coast Tasmanian Rock Lobster Fishery (Pecl et al.

2009).[1] Fundamentally, few sectors in the Australian economy either have been, or are anticipated to be, untouched by the physical or regulatory implications of climate change.

Notwithstanding this, there is at least one sector that, until very recently, has largely escaped scrutiny and attention: the Australian Defence Force (ADF). Although works exist in the Australian scholarly community on broader climate security matters (Edwards 1999, Barnett 2003, 2009, Barnett, Matthew, and O'Brien 2010, Chaturvedi and Doyle 2010, McDonald 2012, Christoff and Eckersley 2014), Australian military journals (Lawson 2007, Thomas 2011, 2013) and think-tank reports (Dupont and Pearman 2006, Bergin and Townsend 2007, Press, Bergin, and Garnsey 2013, Sturrock and Ferguson 2015, Barrie et al. 2015), analysis by the ADF on how it has responded and plans to respond to climate change has been limited. Indeed, while Defence White Papers (2009, 2013) raised some aspects, the ADF itself has not published a *single* publicly available document that focuses exclusively on how it is strategically responding to climate change (Thomas 2015a, 98). Missing from this discussion are explanations about how climate change has impacted (and will impact) critical homeland security-infrastructure, deployable military capabilities, international and regional security, workforce health and well-being or how climate change regulation will affect Defence industry and capability acquisition costs.[2] This lack of published output has not just been limited to formal policy documents. Looking more broadly, Australian military leaders have not outlined a climate change strategy or policy approach for the ADF in any major speeches, articles or media interviews. As a self-proclaimed 'strategy-led organisation'—responsible for vast manpower, infrastructure and GHG emissions—the lack of ADF climate policy stands in contrast to that progressed by the civil sector (Defence 2010c, i).[3]

To trace the roots of this emerging dissonance, it is important to overview Australia's climate security policy settings. The first observation is that climate change remained absent from Australia's strategic policy agenda at precisely the time it was identified elsewhere as

[1]   For a comprehensive list of Australian initiatives relating to climate change see Department of Environment website: http://www.environment.gov.au/climate-change/adaptation/publications.

[2]   While the ADF has not progressed any significant climate policy, public analysis of its response has increased in the lead up to the release of the next Defence White Paper. Two important reports were the Centre for Policy Development, *The Longest Conflict: Australia's Climate Security Challenge* and the Climate Council's *Be Prepared: Climate Change, Security and Australia's Defence Force*.

[3]   Defence has a "strategy" for literally dozens of issues. Examples include: *ADF Indigenous Employment Strategy*; *Defence Air Quality Strategy*; *Energy Management Strategy*; *Waste Minimisation Strategy*; *Defence Pollution Management Strategy; Defence Environmental Education Strategy; Defence Noise, Vibration and Electromagnetic Radiation Generation Strategy* to name a few.

becoming important. This was first described in 2006 by the Australian think-tank, the Lowy Institute (authors Alan Dupont and Graeme Pearman) in *Heating Up The Planet* when they argued 'that the wider security implications of climate change have been largely ignored [in Australia] and seriously underestimated in public, policy, academia and the media' (Dupont and Pearman 2006, viii). In late 2006 the then Secretary of the Department of Defence, Mr. Ric Smith, conceded that Defence had done no internal analysis of the security implications of climate change (Commonwealth of Australia 2006, 70).

The second observation is that even once climate change was identified as a policy priority, it appeared to remain at the margins of Australia's national security agenda. In 2008, then Prime Minister Kevin Rudd stated that 'less attention has been given to the security implications' and that he would initiate its 'formal incorporation … [into] Australia's national security policy and analysis process' (Rudd 2008g). But the outcome was decidedly mixed. In *Heavy Weather: Climate and the Australian Defence Force*, the influential think-tank Australian Strategic Policy Institute (ASPI) stated that the 2009 Defence White Paper (*Force 2030*) had dismissed climate change as an issue for future generations (Press, Bergin, and Garnsey 2013). Likewise, the 2013 *National Security Strategy* stated Australia should [only] 'monitor' the issue and cast it as a 'broader global challenge' that '*may* contribute to instability and tension' at some point in the future (Commonwealth of Australia 2013b, 31; emphasis added).

The absence of climate change in national security circles, particularly the military, was also evident. In one of his first major speeches as Chief of [Australian] Defence Force (CDF), General David Hurley (CDF in tenure 2011 – 2014) identified four fundamental strategic shifts occurring in the world today: climate change or any form of global environmental change was not listed amongst them. On his appointment as CDF, General Hurley also issued an 'All Points Bulletin' where he listed his priorities as CDF. Again, climate change was not mentioned (Hurley 2011). In 2015, Hurley's replacement, Air Chief Marshal Mark Binskin, stated that while the ADF plans for the consequences of a changing climate it does 'not specifically plan for climate change' *per se* (Binskin cited in Commonwealth of Australia 2015, 42). Climate change has also been missed by major ADF reports and reviews. The 2012 *Force Posture Review* commissioned by the then Minister of Defence to assess whether the ADF was positioned to meet Australia's future strategic and security challenges did not mention, discuss or analyse any matters relating to climate change (Hawke and Smith 2012).

The *2012 – 2017 Defence Corporate Plan* that outlined future directions and key priorities including sustainment and development of the organisation as well as the key risks confronting it, did not mention climate change. Similar accounts are to be found in service-level strategy documents, including the Australian Army's annual assessment of the land operating environment out to 2035, the *Future Land Warfare Report* (Australian Army 2014).

This thinking has also been manifest in lower-level ADF policy documents that might have been expected to address climate change. The ADF's lead environmental policy statement, the *Defence Environmental Strategic Plan 2010 – 2014* used the term "climate change" only twice in thirty-four pages and otherwise used the description "climate variability". Although this document focused on ADF compliance with legislative obligations, no discussion existed on how climate change might impact the vast Defence estate, including the most obvious of risks such as predicted sea-level rise to its sizable maritime infrastructure or other low-lying Defence bases. At two pages in length, the 2007 *Defence Energy Policy* also suggested the issue had been taken lightly. While describing Defence as one of the highest consumers of energy within the Australian Government, the policy targeted small, low impact energy reductions in areas such as lighting, heating, hot water services, cooking appliances and swimming pools (Defence 2007a). The ADF's 2008 *Combat Climate Change* "initiative" was striking if only in conflating the exact same policies foswalrdrom the 2007 *Energy Policy*, *Defence Environmental Strategic Plan (2010 – 2014)* and the 2006 *Energy in Government Operations*. Its adoption of limited energy efficiency targets for individuals and its somewhat underwhelming presence (unpublished in hard-copy, available only online at the Defence Support Group webpage) made this less a departmental-wide strategy than a narrowly focused sub-set of its environmental policy.[4]

In sum, none of these documents detailed how the physical or regulatory effects of climate change would impact national security, the wider Department of Defence as well as Australian Defence industry more broadly. As a case in point, the so-called carbon tax as part of the *Clean Energy Act 2011* was forecast by Treasury to cost the ADF $81.9 million for FY 2012 – 13, yet it was missed as a strategic issue (Press, Bergin, and Garnsey 2013, 25).

---

[4]   Since this author first visited the Defence Support Group *Combat Climate Change* web-page in 2011 not one single change to the website was recorded. The webpage can be found at:
http://www.defence.gov.au/environment/climate_change/combat_change.htm

The minimalist ADF response to climate change has, on occasion, been so lighthearted as to be satirical. In the 2006 − 07 *Energy Use in Australian Government Operations*, the government singled out the ADF as demonstrating "leadership" on energy efficiency through the efforts of a small group of Defence personnel who implemented a strategy to improve energy use at a Defence bureau office. The strategy, after meeting with a 'great deal of concern' from information technology (IT) staff, was eventually successful in decreasing Brindabella Park ('Office 3') electricity consumption by '23.4 percent' (Commonwealth of Australia 2008b, 43). The punch-line to this anecdote—and the idea that Defence failed to adopt a strategic outlook—was delivered when it was recognised that the strategy would not have succeeded if not for the implementation of a rewards based system of 'minties and chocolates ... double movie passes [and] Boris, the Energy Hog' who was particularly 'embraced by most personnel and contributed to the overall success of the project' (Commonwealth of Australia 2008b, 43).

Even in places where you would expect some serious discussion, for example in Defence journals, papers and seminars, there appeared little interest or conviction. A content search performed in 2015 of the ADF's leading journal, the *Journal of the Australian Profession of Arms,* under the search category "environmental issues" yielded five articles: one on ADF sustainability, one on energy security, one on environmental law, one on Defence training areas and the fifth, a dubiously titled 1983 piece, concerning "The Military Potential of the Feral Horse and Camel in North West Australia". In thirty-five years of publishing history the *Journal of the Australian Profession of Arms* has published just *two* articles exclusively related to the impact of climate change on Defence (both written by this author in 2011 and 2013). While other ADF journals may not be as devoid of coverage, interest has arguably been scant.

The ADF's apparent strategic apathy toward climate change has resulted in a number of knowledge gaps concerning the impact of climate change on the ADF. A special report by the Australian Strategic Policy Institute (ASPI), *Heavy Weather: Climate and the Australian Defence Force*, identified six core impacts on the ADF. These included impacts on: (1) its missions; (2) capability development and acquisition; (3) adaptation and mitigation of the Defence estate; (4) supply chain (energy) security and fuel interoperability; (5) preparedness; and (6) on personnel and training (Press, Bergin, and Garnsey 2013). Follow up reports by the Centre for Policy Development *The Longest Conflict: Australia's Climate Security*

Challenge (2015) and the Climate Council's *Be Prepared: Climate Change, Security and Australia's Defence Force* (2015) made similar findings.

Placed in a broader context, two key points arise. The first was the emergence of a civil-military divide on the scale and urgency required to address climate change. The civil sector appeared to be well ahead of the Australian military, even though the risks to the ADF were becoming increasingly established. The second point was an emerging concern in some quarters that the apathetic ADF response may yet give rise to potentially avoidable operational, capability and institutional risks. On consideration, an important question now emerges: Why did the ADF fail to develop a clear strategic response to climate change?

This thesis poses four initial reasons (that will be further developed during the case study discussion). First, climate change has been framed as a long-term threat that may not readily fit within Defence budgeting cycles and threat horizons the ADF typically works with. *Force 2030* stated as much when it declared the 'strategic consequences of climate change are … not likely to be felt before 2030' (Defence 2009b, 31). With more pressing security concerns to deal with, that assessment (from 2009) effectively registered climate change as a low policy priority that left the ADF 'without a guiding compass' (Sturrock and Ferguson 2015, 34).

Secondly, even though climate change increasingly featured as part of the ADF's Humanitarian Aid and Disaster Relief (HADR) considerations, there remained a perception that it had little to do with the core business of warfighting. Rob Sturrock and Peter Ferguson (Centre for Policy Development) in *The Longest Conflict: Australia's Climate Security Challenge* detected this aspect, effectively labelling it 'institutional reluctance' (Sturrock and Ferguson 2015, 34). Likewise was the perception in Defence that other government departments (such as Departments of Agriculture, Health, Industry, Infrastructure or Environment), other government agencies (including CSIRO, Australian Energy Regulator or Renewable Energy Agency) or the national intelligence community (Office of National Assessments and security think-tanks) remained far better placed to respond and advise on climate change. Furthermore, the period 1999 – 2013 was one of the most operationally demanding for the ADF, with simultaneous and multiple peace-keeping deployments in the Asia-Pacific and wars in Iraq and Afghanistan. Having had more than forty soldiers killed and many more dozens wounded in wars in Afghanistan and Iraq, there was a sensibility for

the ADF wanting to focus on saving the lives of its soldiers and defeating contemporary enemies rather than be concerned about incremental rises in global sea-level.

The third reason concerned best use of limited resources. In a 2013 speech, the then Chief of the Australian Army, Lieutenant-General David Morrison, forcibly argued this point when he stated that building Defence capability meant ensuring 'real value is extracted from limited resources' (Morrison 2013, 9). To do this, Morrison warned of succumbing to the 'latest [strategic] fad' which can leave 'confused policy makers and force planners in their wake' (2013, 7). For Morrison, 'we inhabit the world of Hobbes not Fukuyama – less solitary, but vastly more brutal' in which the ADF must focus on core issues, urging 'we exist to defeat the nation's enemies' rather than 'semantic and philosophical discourse' which tended to regard the ADF as 'experimental organisations for each transient intellectual speculation' (Morrison 2013, 6 - 8). Thus, for Morrison and the other service chiefs, climate change might simply have represented an unwanted philosophical distraction that did little to enhance immediate war-fighting skills required to defeat peer-enemies and uphold Australia's national security. In this view, the allocation of resources to adapt or mitigate for future climate threats may not have been a mere distraction, but might have been perceived by the military as a risk to national security on the grounds it could have diverted money otherwise meant for warfighting. The seeming re-emergence of geo-strategic issues in Ukraine and Russia (since 2014), the ongoing crisis in Syria (since 2011), including the surge of radical Islam and the sustained growth of the Chinese military and its encroachment in the South China Sea, would support such a focus on "hard" security.

In line with General Morrison's thinking, Lieutenant-General Peter Leahy (a former Chief of the Australian Army) proffered that militaries are also conservative institutions that can be slow to adapt (Leahy 2010, 9). Perhaps this was also true of climate change, and the ADF remained cautious until the risks became clearer, more urgent and the science more granular? Another possibility pointed towards the idea that the ADF might not be the strategic organisation it purports to be. In this context, climate change may simply be too complex and overwhelming even for vast resources of the military-bureaucracy to adapt and mitigate for. As the Professor of Strategic Studies at the Australian National University and former Departmental Deputy Secretary for Strategy, Hugh White has suggested: 'The ADF is not a strategic organisation. It is very much focused at the tactical level' (quoted in Morris 2015). This position has been reflected elsewhere, notably by the strategist Peter Layton who has

argued 'the next DWP [Defence White Paper] is likely to be a non-strategy of risk management' (Layton 2014).

A final consideration related to sensitivities surrounding the politics of climate change. In particular, the divergent climate policies of Australia's two major political parties the Liberal-National Party and Australian Labor Party (ALP) and how climate change had become a stark political differentiator or "wedge issue" in domestic politics. Viewed in this way, the ADF reluctance to engage on climate change may be seen as an effort to retain its non-partisan persona, thereby actively avoiding political debate. Moreover, the political dimension of climate change discourse and its influence on the Australian military cannot be dismissed.

Suffice to say, the limited offerings by the Department of Defence on the subject of climate change has made it difficult to discern why it has been neglected. Furthermore, few contributions have been provided by the (Australian) scholarly academy, where research on the subject of the military and climate change has been sparse. To gain further insight into the ADF's climate dissonance, it is worthwhile to briefly overview how the international security community—including Australia's major allies the United States (US) and United Kingdom (UK)—have responded to climate change.

The Securitisation of Climate Change

Climate change first emerged as an important global governance issue in the 1980s when the UN established the IPCC in 1988 and then the Framework Convention on Climate Change (UNFCCC) in 1992. Widespread international interest was piqued in 2007 by the release of the IPCC Fourth Assessment Report (AR4) that declared 'warming of the climate system is unequivocal' (IPCC 2007, 30). The heightened sense that "something must be done" witnessed unprecedented interest and was described by one leading securitisation scholar as a 'turning point' (Brauch 2009c, 62). From 2007, climate change appeared as a mainstream issue and was prioritised on the global agenda at multiple G8/G20 summits, the European Union, the OECD, the Africa Union as well as debates in the UN General Assembly (2008 and 2011) and UN Security Council (2007 and 2011) to name a few (Oels 2012, 195).

As the perceived urgency of climate change increased, international interest and concern about its security implications grew. Scholars (Brauch 2012, Brzoska 2012 and Oels 2012) contend that the period between 2007 and 2011 was marked by high-level efforts to escalate the importance of climate change by framing it as a *securitised* issue, presenting it as a threat to human, national and international security. As climate change was placed on the global political (security) agenda, it was increasingly being considered by traditional securitising actors, namely the national defence ministries, military establishments and intelligence communities (IPCC 2015, 7). Scholar Michael Brzoska analysed the national security strategies of 31 countries for climate change as a security issue and concluded that 'climate change has become a widely, though not universally, accepted security issue among national security elites' (Brzoska 2012b, 175).[5] In short, high-level international efforts to securitise climate change have resulted in the military sector becoming an important stakeholder in the field of climate-security. Indeed, by 2009 some scholars went as far to conclude that 'recent evidence of abrupt climate change and threatening tipping points has bought the challenge of climate change into the urgent timescale of military contingency planning' (Spencer et al. 2009, 1).

This point was not lost on the militaries of Australia's two most historically important allies, the US and UK. Abetted by almost a decade of think-tank, scholarly and military literature on the security implications of climate change, the US and UK militaries have appeared vastly more engaged on the subject than the ADF.[6] Both US and UK militaries, for instance,

---

[5]   The international community, more broadly, is divided on the securitisation of climate change. Two main camps are evident. In one camp are countries working to ensure climate change remains a *non-securitised* issue addressed outside the logic of security politics. Although exceptions exist, this position is mainly advanced by Brazil, Russia, India and China (BRICS), developing countries and the Third World. The main argument held by the BRICS+ is that whilst climate change may present certain kinds of threats to international peace and security, it primarily remains a sustainable development issue where focus must be on delivering mitigation and adaptation strategies as well as finance mobilisation, technology transfer and capacity–building in developing countries. In contrast to these positions are 'pro-securitizing' countries that have sought to frame climate change as a securitised issue to be dealt through multi-lateral, non-securitised *and* securitised *fora*. Countries subscribing to this 'two-track' approach mainly consist of developed countries such as those within the EU as well as the US, UK, Australia and a collection of other small island nations as well as some developing countries most affected by climate change. These countries argue that securitizing climate change raises its profile, engenders a sense of purpose and urgency into international mitigation and adaptation strategies and should be viewed as part of a wider strategy of 'preventative diplomacy'. See Thomas, Michael. 2013. "The Securitisation of Climate Change: A Military Perspective." *Journal of the Australian Profession of Arms*, no. 192: 7 – 18.

[6]   A list of the climate-security literature within the US and UK is extensive. Prominent examples (to name a few) include: *An Abrupt Climate Change Scenario and Its Implications for US National Security* (Schwartz and Randall, 2003), *National Security and the Threat of Climate Change* (Centre for Naval Analyses, 2007), *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change* (Centre for Strategic and International Studies, 2007), *Broadening Horizons: Climate Change and the US*

appointed senior military officials to oversee a strategic military response to address climate change.[7] Both have developed major policy papers detailing climate change adaptation strategies and, to varying degrees, declared positions that reduce energy consumption and emissions of major parts of its operational inventory to contribute to climate change mitigation efforts. This latter initiative included both homeland base infrastructure as well as the deployable forces of both militaries. Various scholarly works have also highlighted the US and UK militaries as important securitising actors responding to climate change (Brzoska 2012b, Hayes and Knox-Hayes 2014).

Prima facie, the measures undertaken by the US and UK militaries in relation to climate change appeared in stark contrast to those adopted by the ADF.[8] Thus, the ADF's strategic dissonance towards climate change appeared not just limited to the domestic horizon. Indications are that such a dissonance extended to the international realm where allied militaries with long histories of mutual cooperation, interoperability and policy alignment seemingly undertook proportionally larger efforts and showed far greater interest in their responses to climate change.

Research Gap

Climate change has emerged as a key strategic issue that will define the twenty-first century. And yet, although the subject has generated an enormous corpus of research across a broad range of fields, this introduction has briefly highlighted insufficient institutional, policy and scholarly attention regarding its impact on the ADF. This thesis therefore builds-upon the observations made by both the Lowy Institute in 2006, the Australian Strategic Policy Institute (ASPI) in 2007 and 2013 and the 2015 reports by the Centre for Policy Development and Climate Council that the lack of attention regarding the ADF and climate change has exposed a blind spot in Australian Defence policy and military planning. Ultimately such a strategic blind spot could impact in two broad ways. On the one hand it could expose Australia and the ADF to unnecessary risk regarding the health of its people, its infrastructure

---

Armed Forces (Centre for New American Security, 2010), *MoD Climate Change Delivery Plan* (Ministry of Defence, 2010), *US Navy Climate Change Roadmap* (US Navy, 2010), *National Security Implications of Climate Change for US Naval Forces* (National Research Council, 2011).

[7] For UK, see Rear Admiral Neil Morisetti at https://www.gov.uk/government/people/neil-morisetti. For US see Rear Admiral David W. Titley at http://www.navy.mil/navydata/bios/navybio.asp?bioID=438.

[8] For an overview of the key differences between the UK, US and Australian military response to climate change see Barrie et al. (2015), particularly at Table 1, p. 66.

and estate, its capability preparedness, operational force projection and wider geo-strategic aims. On the other, it may remove any opportunity to innovate and use climate change to pursue advantage for the greater good. This thesis is therefore crucial in deepening and extending scholarly and policy understandings of climate security.

1.2   Thesis Aim

The aim of this thesis is to examine the process of climate securitisation within the Australian political-military sector between 2003 – 2013. As a means of comparison with an important strategic ally, the Austalian situation is contrasted with climate securitisation in the US political-military sector. The primary focus of this thesis, however, remains Australia.

To meet this aim the thesis used securitisation frameworks, developed from the Copenhagen and Paris Schools, to establish four lines of inquiry:

- *Contextual framing*. In what context did the Australian and US political-military sector frame climate change? This question analyses whether climate change was used to frame the issues.

- *Temporal framing*. To what level of urgency did the Australian and US political-military sectors frame climate change? This question analyses whether climate change was framed as an urgent issue to be dealt with immediately (thereby justifying emergency (military) measures) or as strategic issue prevalent across decades (thereby not justifying "emergency measures").

- *Response Measures / Actions*. What response measures (actions) did each military undertake in specific response to address climate change? Did any of these measures break free of "normal" rules and promote emergency measures? Similarly, to what extent did the measures become part of the normal practices and processes of the military sector?

- *Loci of climate change response in the military*. Which departments, sections or programs within the military-bureaucratic structures responded to climate change?

How enduring was this response? This question examines the organisational penetration of climate change within the Australian and US military-bureaucracies.

In undertaking this analysis, the thesis also analyses the relationship between the *political* sphere and the *military* sphere in relation to climate securitisation. This aspect specifically examines if there was any divergence or difference between the political responses to climate change as against the military responses to climate change. Furthermore, it is anticipated that this analysis will identify which actor(s) were the dominant ones in relation to climate securitisation. Relatedly, the thesis compares differences in the response to climate change between the Australian political-military establishment and that of the US.

Finally, this thesis seeks to make a contribution to securitisation research methods. Namely, the use of a combination of software-assisted techniques and manual qualitative content analysis techniques using a large sample of primary source documents over a decadal timeframe. This method differs from standard scholarly approaches in securitisation studies that tend to examine an exclusive security event or are limited in their source analysis to smaller sampling sizes or single forms (e.g., the singular examination of speech-acts). The thesis therefore concludes by briefly evaluating the applicability and usefulness of this research method.

In addressing these aims, it is intended that this thesis will make a unique and important contribution to the emerging climate change security discourse and provide a benchmark from which researchers, policy makers and strategic planners might develop more detailed and comprehensive climate responses. In this respect, it seeks to redress what has emerged as a blind spot in Australian strategic discourse.

1.3   Analytical Framework: Securitisation Theory

The analytical framework that informed this thesis is based on securitisation theory from the Copenhagen School and from Michel Foucault's work on "governmentality" and security "dispositifs" from the so-called Paris School. Both frameworks (i.e., the Copenhagen and Paris Schools) informed the literature review at Chapter four but were central to the case study design described in detail at Chapter five and then applied during the case studies at Chapters six and seven. This section builds the conceptual framework for this thesis by

briefly evaluating the main tenets and shortfalls from each School. It describes in general terms how each framework informed this thesis, particularly in relation to the central research question and lines of inquiry undertaken during the case studies.

Copenhagen School

The first framework, Copenhagen School's securitisation theory, was originally outlined by Ole Wæver in 1995 but received its fullest treatment in *Security: A New Framework for Analysis* (1998) as a means to broaden the scope of security studies and to distinguish the process of securitisation from that of politicisation. In their seminal work, Buzan, Wæver, and de-Wilde (1998) assert that although threats and vulnerabilities may arise in many different sectors (political, economic, environment, societal and military) most are successfully dealt with as either non-politicised issues (no government involvement) or as politicised issues (some form of government involvement). For a threat to become 'securitized' and therefore 'above politics' it needs to be framed as an '*existential threat* to a referent object by a securitizing actor' who then 'generates endorsement of *emergency measures*' that causes actors to move '*beyond rules* that would otherwise bind' [emphasis added] (Buzan, Wæver, and de-Wilde 1998, 5 & 23). These three critical criteria (presented as an existential threat, justifying emergency measures and breaking free of normal rules) formed the core elements in the lines of inquiry listed above and were used as fundamental indicators during the case study design at Chapter five and throughout the case studies at Chapters 6 and 7.

"Actions" or "events" (such as certain speech-acts, policy measures or even military build-up and security "incidents") that contribute to emergency measures beyond normal rules might generally be considered as securitising moves. Such actions might "move" an issue beyond what political scientist Angela Oels (2012, 201) has called the 'threshold of exceptionality' and into a securitised modality; 'de-securitising moves' bring the issue back to 'normal' politics. Copenhagen School theorists place a premium on the politicised modality, 'security [is a] negative … de-securitization is the optimal' (Buzan, Wæver, and de-Wilde 1998, 29). Figure 1 illustrates (in a modified form) the Copenhagen framework where issues may oscillate between a non-politicised, politicised or securitised modality. The most dominant mode is the politicised modality and it is graphically presented as the largest of the three. This thesis primarily focused on what took place inside the area of the dashed box, and where

securitisation studies are typically focused (and specifically the *process* of securitisation that is denoted by the rightwards arrow within the dashed box). The thesis also used the Copenhagen School concept of "sectors" which helped to confine the scope of inquiry to 'manageable proportions' (Buzan, Wæver, and de-Wilde 1998, 8). The case studies primarily focus on climate change in the political and military sector.
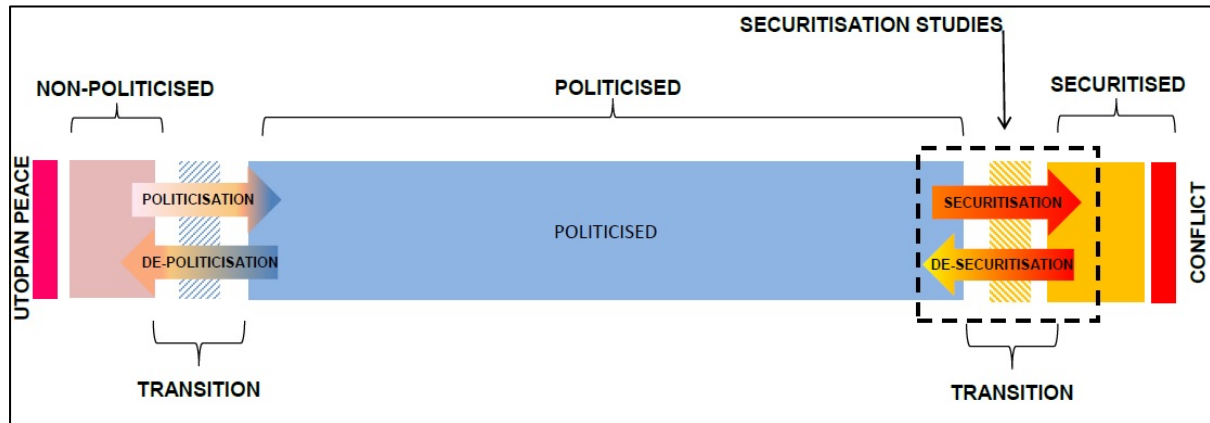
Figure 1. Copenhagen School modalities (non-politicised, politicised and securitised). Source: Author.

In addition to the three key securitising requirements (existential threat, emergency merasures and beyond normal rules), the Copenhagen School maintains that these are underpinned by a number of other qualifying conditions. Firstly, a securitising move may not be solely expressed through and by the state; politicisation and securitisation may be enacted in other fora and by other (non-state) actors. Secondly, the original Copenhagen theorists argued that an issue may only be securitised when an audience accepts it as such. In contrast, 'if no sign of such acceptance exist[s], we can talk only of a *securitizing move*, not of an object actually being securitized' (Buzan, Wæver, and de-Wilde 1998, 25; emphasis added). Thirdly, security is a 'self-referential' practice. Thus, an issue may only need to be *perceived* as a threat, not necessarily because it is a *real* existential threat. Fourthly, different sectors and different levels have different referent objects and different perceptions of what constitutes an existential threat. This produces a great variety of threats to a range of actors at multiple levels. These conceptualisations of "security" echoed earlier scholarly contributions that defined security as an inherently ambiguous and essentially contested concept that has different meanings in different geographical, temporal and cultural settings (Wolfers 1952, Gallie 1956, Buzan 1991, Dalby 1992).

From this framework, the Copenhagen School have described the aim of securitisation studies as gaining a 'precise understanding of who securitizes, on what issues (threats), for whom (referent objects), why, with what results, and not least, under what condition' (Buzan, Wæver, and de-Wilde 1998, 32). Since "power" is an ephemeral concept that constantly shifts between different actors, the Copenhagen School identify that the centre of analysis in security studies must therefore be the *process* of securitisation. This thesis adopts this approach by focusing on securitisation process in the political and military sector. The Copenhagen School also advocated that the best method to study securitisation is to 'study discourse and political constellations' by 'textual analysis' of 'speech acts' (Buzan, Wæver, and de-Wilde 1998, 24 - 26). This method locates itself within language theory; specifically work by John L. Austin whose concept of 'performative utterance' was laid down in *How to Do Things With Words* (Austin 1962, 6). From Austin, the Copenhagen School surmise that 'the process of securitization is what in language theory is called a speech act … it is the utterance itself that is the act. By saying words, something is done' (Buzan, Wæver, and de-Wilde 1998, 26). This thesis also places an emphasis on analysing the speech-acts of key political and military actors but, as will be described below, it differs from purist interpretations of Copenhagen School since it extends analysis to include other written material and actions.

The successful uptake of securitisation theory by researchers (particularly in Europe) has also given rise to significant critique that has extended and (for some) strengthened the original works by the School's original trio. In 2003, Wæver acknowledged that although 'there is by now a surprising amount of empirical studies done with full or partial use of the securitization theory' they did not follow a 'standardized format' (quoted in Stritzel 2007, 359). Although Wæver accepted that 'the theory does not point to one particular type of [methodology] as the right one' it demonstrated the theory's strength since 'diversity is a sign that theory … can generate/structure different kinds of usage and even produce anomalies in different ways' (quoted in Stritzel 2007, 359). Conversely, the scholar Holger Stritzel suggested that the 'theoretical contradictions, anomalies and inconsistent empirical applications … prohibit the improvement of existing concepts in light of (comparative) empirical findings' (Stritzel 2007, 359). The following paragraphs will highlight key criticisms of Copenhagen School securitisation theory. More specifically, it will identify those aspects that were outside the scope of this thesis or were otherwise included into the thesis' method.

One area of criticism has been the inability of securitisation theory to reconcile 'the silent security dilemma' (Hansen 2000, 287). In this situation, subjects of (in)security are literally unable to articulate the necessary epistemological and methodological criterion (as defined by Copenhagen School) for issues to become securitised.[9] Buzan and Hansen cite the rape of Muslin women and their inability to voice the issue as a security concern (lest they increase the threat to themselves) as a case in point (Buzan and Hansen 2009). Moreover, because the Copenhagen School argue that an issue can only be securitised if an audience accepts it as such; *ipso facto* if the audience is not in a position to show any sign of such acceptance then the issue would remain non-securitised. The potential for exploitation by elites was noted by Australian political-scientist Matt McDonald who argued that such a focus 'serves to marginalize the experience and articulations of the powerless in global politics, presenting them at best a part of an audience that can collectively consent to or contest securitizing moves, and at worst as passive recipients of elite discourses' (McDonald 2008, 574). While these are all valid criticisms, they do not form part of this thesis which seeks to evaluate the response by the political and military elite to the security challenges posed by climate change.

Further criticism has been the claim that securitisation is best observed (solely) through the study of 'speech acts'. Thierry Balzacq (2005) referred to Austin when he described a speech act as containing three parts: (1) *locutionary* - the utterance of an expression that contains a given sense and reference; (2) *illocutionary* - the performative act in articulating a locution; and (3) *perlocutionary* - effects as a consequence or outcome of the locution which evoke a reaction or response from the target audience. These three parts were neatly summarised by Jürgen Habermas (as cited in Balzacq 2005, 175) as: 'to say *something*, to act *in* saying something, to bring about something *through* acting in saying something' [emphasis in original].

Balzacq argued that, by its own definition, securitisation theory ignores the perlocutionary effects of the speech act which are 'central, rather than tangential to understanding how a particular public issue can change a security problem' (Balzacq 2005: 176). By failing to adequately account for the perlocutionary part of the speech act, Balzacq posited that securitisation theory failed to 'properly incorporate audience and context', producing 'philosophical flaws' that reduced it to an 'institutional procedure' (2005: 176 - 177). As

---

[9]   Wæver (1995: 57) states 'security is articulated only from a specific place, in an institutional voice, by elites'.

mitigation, Balzacq proposed to 'knit the three acts' into an integrated concept which he termed a 'pragmatic act'. Balzacq wrote that the pragmatic act is made up of two overlapping levels: the agent (focusing on power position and social identity of the performer as well as the nature and capacity of the target audience) and the act (referring to use of language and the use of a broad range of heuristic artefacts).

Three key assumptions underpin this approach: effective securitisation is highly context-dependent; it is audience centered and its dynamics are power-laden. By adopting 'a strategic (pragmatic) approach to securitization, rather than conceiving of it as a speech act', Balzacq opens a far broader horizon for researchers seeking to understand its processes (Balzacq 2009, 179). To cite examples of this, Balzacq emphasised 'contextual and non-linguistic clues' in which '[l]anguage does not construct reality … [it] becomes a matter of understanding how external contexts, including external objective developments, affect securitization. [E]xternal developments are central to it' (2005: 178 - 183).

The ability to examine 'non-linguistic' and 'written' artefacts against the context of events opened research avenues beyond 'speech acts'. This position was also advanced by Hansen (2000) who argued that an exclusive examination of speech acts can 'exclude the potential importance of non-verbal communication' such as 'visual representation [including] … drawings, photography and television' as well as body language as an 'instrument of the utterance' (Hansen 2000, 300 & 301). Claire Wilkinson in *Security Dialogue* reinforced this when she argued:

> The relationship between speech and action is more complex than the portrayal offered by securitization. Particularly in the case of domestic politics, *action may precede the speech-act* that is fundamental to securitization. Yet, the Copenhagen School does not currently possess the theoretical vocabulary to reflect this dynamic whereby '*sufficient action' may replace or supplement the speech-act as the driving logic in the process of securitization* (Wilkinson 2007, 22; emphasis added).

Rita Floyd perhaps best sums up these positions by arguing that '*securitization = securitizing move + security practice*' (Floyd 2011, 429). This outlook acknowledges that for a securitisation to be complete, it requires a change in behaviour by either the securitising actor

or the audience. These conceptual advances are highly relevant for this thesis since they open up the possibility of considering a far broader array of 'artefacts' than was originally described by the Copenhagen School. This is particularly crucial for this thesis since it undertakes an examination of the military domain, which is traditionally a very difficult area to access information. For this thesis, examination of military policy documents, military doctrine, military social media feeds, journal papers, actions (such as military exercises or policy itself) as well as capability acquisitions and investments are given due consideration (alongside speech acts) for their role in securitisation.

Furthermore, analysing artefacts *within context* also becomes crucial (McDonald 2008). On this basis, it was determined from the outset that a singular examination of the military sector alone would restrict understanding of why the military had adopted a particular response (or not). This thesis therefore set out to include a literature review of scientific works and broader securitisation literature as they relate to climate change. During the case studies, context is provided through select examination of the *political* sector regarding climate security. Not unreasonably, it might be hypothesised that the highly charged political debates surrounding climate change make it a unique security issue and that the military response may in fact be moderated by the political dimension.

Two other criticisms of the Copenhagen School are noteworthy. The first relates to the concept of de-securitisation. De-securitisation can be likened to securitisation in reverse: a retrieval of the 'politics of normality' (Aradau et al. 2006, 455). Critics have argued that de-securitising moves must be carefully scrutinised so as to not allow dominant political elites to claim they have 'successfully' de-securitised an issue when it otherwise remains an objective security threat for someone or some other group (see various authors as cited at Buzan and Hansen 2009, 217). Although desecuritisation concepts are important, they are not examined in depth by this thesis partly because this thesis is mainly concerned with understanding the *process of securitisation* and also since the initial literature review revealed that climate change, as a security issue at least, remained contested.

The second criticism relates to the idea that for an issue to be successfully securitised it must only be done so under exceptional circumstances by actors in emergency situations. Huysmans (2006) and Bigo et al. (2008) have argued that such a focus can obscure or overlook the (unexceptional) everyday goings on by the bureaucratic institutions. This was

echoed by Angela Oel, who stated that 'the original Copenhagen framework is blind to such observations below the threshold of exceptionality' (Oels 2012, 193). In these cases, issues of importance can simply slip below the policy agenda. On this premise, these critics argue that securitisation can be better understood by examining the institutionalisation of the field of security by the 'professionals of (in)security' embedded within departments of State (e.g., police and armed forces, intelligence, defence ministries). This perspective has been labeled the 'Paris School' and was considered by the author to add an important—albeit different—perspective from which to examine climate securitisation in the military.

Paris School

The so-called Paris School examines the governance of security issues below the threshold of exceptionality. Grounded in the earlier works of French sociologists, Pierre Bourdieu (1969) and Michel Foucault (1982), and more recently by Jef Huysmans (2004, 2006) and particularly Didier Bigo (2006, 2008) the Paris School focuses on revealing the everyday (bureaucratic and routine) practices of the 'professionals of (in)security' (Oels 2012, 197). In general terms (and as interpreted and used throughout this thesis) the Paris School examines the governance and bureaucratisation—the translation into new policies and initiatives—of (security) issues, especially by the agencies of the police, intelligence, military and associated security professionals. Integral to the Paris School framework is a critical perspective that seeks to expose how these security monoliths (the "dispositifs") deliberately position themselves to advantage via various institutional and governance mechanisms and transnational networks to control security agendas (Bigo et al. 2008). In this framework, issues become securitised to suit the agenda of institutional elite, enhancing their power and relegating democratic process. By doing so, illiberal practices become the standard practices of liberal democracies. As was noted by Bigo, the Paris School rejects the argument of a 'permanent state of exception' and seeks to show how 'some governments have played with the opportunities of the situation to impose other political agendas' (2008, 5). This forms a central notion when considering the political dimension of climate-security and will be explored in more detail during the case studies.

While the Paris School framework shares many similarities with the Copenhagen framework, it differs in its interpretation of the exceptional. For instance, while the Copenhagen School tends to view securitisation as a distinct modality (figure 1), this is not the case with the Paris

School where the 'existential threat and the politics of terror cannot be distinguished so easily' (Bigo and Tsoukala 2008, 5). Furthermore, rather than focus on the speech-acts of the main actors ('[they] are not decisive'), the Paris School views security as a 'social field' which focuses on security institutions and lower level practitioners whom Bigo regards as the real architects of (in)security (Bigo and Tsoukala 2008, 4). Finally, whereas the Copenhagen School adopts a "threat" based construction of security (in terms of how issues are framed and the actual "grammar" used by securitising actor), the Paris School is rather focused on governance practices as exemplified by risk-based approaches; what Olaf Corry has labelled 'risk security' (Corry 2011). The following paragraphs provide greater depth on the Paris School and how it was used during the case studies.

As noted above, the Paris School comes from works by French sociologist Michel Foucault and specifically his conception of a *dispositif* that refers to the social and political structures and actions as well as knowledge that enhances the authority of one group over another (for example, political elite over the social mass). Italian scholar Giorgio Agamben defined a *dispositif* as 'everything that has in some way the capacity of capturing, determining, orienting, intercepting, shaping, guiding, securing, or controlling the behavior, gestures, opinion, discourses of living beings or substances' (Agamben 2005).

Leading scholars of the Paris School, Didier Bigo and Jef Huysmans, drew on Foucault's 1980s governmentality lectures to apply the '*security dispositif*' in which 'the daily practices of actors are linked by a complex web of relationships [that] taken together, render a social problem governable as a security issue' (Foucault 1982, 194; emphasis in original). For Angela Oels, the focus of the Paris School is not to consider the production of issues as 'good or bad' but rather to reveal the 'practices and policy implications of specific *security dispositifs* [emphasis in original], and in doing so highlight unintended and problematic developments' (Oels 2012, 198).

Didier Bigo has argued that one such consequence has been the emergence of a relentless and pervasive transnational state-corporatist security apparatus (for example the police, military, militia, intelligence, reserve forces) which claimed to possess *the* 'truth' (acquired from surveillance and data gathering) in relation to potential threats. Bigo stated:

> Within the production of this *regime of truth* and the battle to establish
> the 'legitimate' causes of fear, of unease, of doubt and uncertainty, the
> (in)security professionals have the strategy to overstep national
> boundaries and form corporatist professional alliances to reinforce the
> credibility of their assertions and to win the internal struggles in their
> respective national fields (Bigo 2008, 12; emphasis in original).

Furthermore, Bigo argued that such is the power of the 'professionals of unease' that they may 'openly critique the politicians and political strategies of their respective countries' to bolster their own positions. For Bigo:

> The notion of state, as conceived by international relations theory,
> cannot adapt to the result of these tensions created by transnational
> bureaucratic links between professionals of politics, judges, police,
> intelligence agencies and the military … whereby a certain number of
> professional from public institutions … such as the military … occupy
> the dominant positions (Bigo 2008, 13).

In this scenario, politicians require the endorsement of the security elite when invoking a threat in order to engender a certain level of credibility from the public. This dimension has, perhaps, been witnessed in climate debates where politicians have resorted to claims that "even the Generals" consider climate change a security issue. This assessment has profound implications for this thesis in other ways too. Through examining both the political and the military sector it may be possible to identify whether Bigo's assertions—of the military being being "dominant" over the other—actually occurred in relation to climate change. Was climate security a politically constructed security threat or a military constructed one?[10] Were military elites able to use climate security to their own advantage?

In terms of its utility to study securitisation discourses, a number of prominent European scholars have noted that the Paris School treats security as a 'technique of government with a focus on investigating 'intentions behind the use of power' (Aradau et al. 2006, 457). For these scholars, rather than focusing on 'speech acts', the Paris School:

---

[10]   Perhaps it was neither? Though, this discussion remains out-of-scope for this thesis.

> [E]mphasizes practices, audiences and contexts that enable and constrain the production of specific forms of governmentality … this approach argues that, today, the field of security is determined not by the sovereign power to kill but also by … 'a field of security constituted by groups and institutions that authorize themselves and that are authorized to state what security *is*' ... securitization is to focus on the creation of networks of professionals of (in)security, the systems of meaning they generate and the productive power of their practices (Aradau et al. 2006, 457 - 458; emphasis in original).

Angela Oels (2012) applied this method to examine the relationship between 'the professionals of (in)security' and climate change. Noting the limits of Copenhagen School securitisation method, Oels surmised the strengths of analysing climate change and security from the perspective of the Paris School.

> First, this school does not fix the meaning of security … the heterogeneous network of security practices and discourses is investigated. The distribution of discursive elements can be mapped and changes can be observed over time.

> Second, the Paris School directs attention away from 'extraordinary measures' and towards the routine practices of (non-elite) professionals of security, and analyses how their practices produce security discourses (and are incited by them). This renders visible all those *policy transformations which remain below the threshold of exceptionality* (Oels 2012, 201; emphasis added).

Thus, the Paris School best views the 'securitization of climate change' as a 'climatization of the security field' (Oels 2012, 185). For this thesis, the Paris School provides an important companion to Copenhagen School approaches since it also provides a theoretical basis for delving into the deeper recesses of the military bureaucracy's climate response—thereby exposing the processes of securitisation (within political-military bureaucracy) and the translation of strategic-political direction into new lower level policies and initiatives. Oels

(2012, 185) argued that although these types of analysis are 'still in [its] infancy and empirically hard to detect' it is important since it may provide insight into how climate change is being rendered governable as a security issue which may then shed light on the consequences in so doing.

Finally, some scholars have argued that the political-military establishment has already begun to frame climate change as a legitimate security threat and are bureaucratising (governing) the problem in terms of "risk" by incorporating climate change into its everyday practices. Possible evidence of this may include the deployment of military climate change strategies, roadmaps, budgets to address climate risks with new capability and incorporating climate change into doctrine and strategic scenario planning. Other evidence might also be seen by the inclusion of climate change responses within doctrine, policy edicts, journal articles, forums or response measures that may address climate change.

These aspects relate to what Olaf Corry has labeled 'riskification' (as distinct from securitisation) in which the Paris School views society as being '(over-)controlled by cumulative security practices using 'risk' as a major tool and strategy of legitimation' (Corry 2011, 243). For Corry, the Paris School approach is defined by this perspective where 'risks (understood as conditions of possibility for harm) to a referent object [lead] to programmes for permanent changes aimed at reducing vulnerability and boosting governance-capacity of the valued referent object itself' (Corry 2011, 248). For Corry, risk is a governance technique and one that 'promotes long-term precautionary' measures (ibid, 235). It is important to stress that this thesis does intend to enter into particular scholarly debates surrounding the competing definitions of "risk" or "threat-based" approaches to security. Nor does the thesis specifically examine "climate change" framed in the "grammar" of risk; where Corry and others (Lucke, Diez, and Wellmann 2013) distinguish "risks" from "threats" and one which requires "a different grammar" or "a different kind of speech act" (Corry 2011, 236). Rather, this thesis deliberately prioritises Copenhagen "threat-based" approaches to security; the case study method outlined in Chapter five will highlight this. Nonetheless, it is the intent of this thesis to use the Paris School approach as a basis for examining a range of "everyday" processes, practices and programs by the political-military establishment in their response to climate change; an examination of the *un*exceptional. This aspect is intended to be addressed by one of the research lines of inquiry that seeks to examine what (bureaucratic) response measures were adopted by the US and Australian militaries. Thus, conceptualisations of Paris

School as focusing on governance techniques that attempt to address issues in terms of various institutional processes, practices and programs (including risk-based approaches) below the threshold of exceptionality *is* examined.

Case Study Selection and Development

Multiple case study design of the Australian and US political and military sector was undertaken by this thesis. The use of the case study as a research strategy and the particulars of the case study design were informed by works from Hartley (2004) and Yin (2012); specifically the notion of conducting a systematic inquiry where little research has previously existed. The Australian and US political-military establishments were identified as suitable case studies since: (1) each military possessed sufficient empirical data in written and spoken English that were accessible via open sources; (2) each military possessed sufficient data grounded from equivalent levels-of-analysis within and across their bureaucratic structures (thereby supporting cross-case analysis); (3) each military possessed sufficient longitudinal data (available across a decade timeframe); (4) each of the countries have been (to varying degrees) pro-securitising ones (at the political level) who have actively pursued climate securitisation through the United Nations (UN); and (5) the researcher was familiar with the structures of each country's political-military sector.

Multiple-case study design was also chosen since it enabled a comparative assessment of how the ADF has responded in direct comparison with a major military partner. Furthermore, because Australia and the US have long standing political-military agreements and historical ties regarding military-to-military information-sharing on matters including intelligence, policy settings and strategy then this was portended to enable realistic policy contributions to the ADF on the issue of climate change.

Notwithstanding, this thesis also highlights that research of climate change and the military sector (in general terms) remains in its infancy. Thus, the selection of known militaries is undertaken since this was reckoned the most likely to yield a baseline from which further research may compare the climate response by (especially) non-Western militaries (such as China or Indonesia) or other like-militaries (such as Canada).

1.4   Thesis Scope

Climate change is an issue that touches practically all aspects of human endeavor, the military being no exception. Because of this, it was an early priority to establish clear research boundaries. The following passages highlight some of the key research boundaries that were applied, specifically during the case studies.

Research Boundaries

Analytical. Securitisation theory was used to analyse the political and military response to climate change. By itself, this decision set the research scope by ensuring a focus on *security* related aspects over alternate perspectives (for example on the risk, economic, environmental or workforce health agendas of climate change). A particular flow-on effect of this decision was an avoidance of wider political debates on climate change (where politics is discussed, it is done so in the context of climate securitisation). Relatedly, preferencing climate security matters also meant an exclusion of other specific global change issues such as biodiversity loss, population growth and habitat destruction and their related impacts on security.

Having selected securitisation as the broad analytical approach, the thesis derived its main analytical framework from the critical perspectives of Copenhagen and Paris Schools. The decision to preference these frameworks formed a further research boundary which, by its very nature, tended to restrict broader involvement of other frameworks. However, to avoid over-reliance on Copenhagen and Paris approaches, a literature review of how broader IR and strategic studies theories have approached climate security was undertaken (Chapter three). Nonetheless, the thesis did not incorporate other frameworks as suggested by Bigo (2008), including those more likely to be used by sociologists and criminologists.

The decision to preference Copenhagen and Paris School approaches, however, did not entail a complete incorporation of *all* aspects of the respective frameworks. The most prominent exclusion concerned Copenhagen School's claim that an issue may only be securitised if an *audience* accepts it as such. Moreover, to get a more holistic picture of climate-securitisation within the military sector it would have been necessary to examine how the military efforts to securitise (if any) had impacted on audiences. This was considered out-of-scope due to the

difficulties in analysing audiences. For instance, one challenge arises when asking: which audience? If, as is often the case with military speeches or policy, the intended target audience was a foreign military or the citizens of another country, then significant challenges arise from accessing material which might then require translation. Thus, as was noted earlier by Buzan *et. al.* (1998), this thesis was technically limited to only examining securitising moves by the respective military.

Also out-of-scope were concepts of *de-securitisation*. De-securitisation was excluded on the basis that many scholars have assessed that climate securitisation as a largely 'failed' venture (Brauch 2012; McDonald 2012; Oels 2012). With some qualification, it was decided by the author that if securitisation had failed, then de-securitisation may not be evident. Also, the conceptual framework of de-securitisation was considered by the author to be under-developed compared with the securitising framework .

Unit of Analysis. The broad unit of analysis used for this thesis was the political and military sector (narrowed to the two political-military establishments of the US and Australia). The size and scale of each of these militaries, however, made it necessary to place further research boundaries around the military-bureaucratic structures themselves. This meant that some organisational parts were included, while other parts were excluded.

Although militaries are largely hierarchical and static organisations, they can tend toward increasing levels of complexity. The US military, by way of example, is the world's largest military, it possesses a budget of roughly half one-trillion dollars, it is the world's largest employer (3.12 million people), consists of three major service departments (of Army, Navy and Air Force), 21 proscribed agencies (e.g., Defence Advanced Research Programs, Defence Intelligence Agency and so), nine combatant commands (e.g., USCENTCOM, USEUCOM and so on) and other major auxiliaries (US DoD 2015a). Each of these entities further cascade into a myriad (hundreds, if not thousands) of sub-departments, divisions, branches, offices and programs that further fund hybrid institutions of part-military, part-civilian and part-industry initiatives. Thus, it was important to restrict analysis to particular parts of the military organisation. The organisational research boundaries are explained in detail for each military during each of the case studies at Chapters six and seven.

Artefact scope. "Artefacts" examined during the course of the case studies (for example a speech-act) constituted the most fundamental unit-of-analysis considered by this thesis. The first qualifying principle for inclusion/exclusion was ensuring that any given artefact was published by either the respective Federal Government or Department of Defence. Instances where this did not apply was when an "actor" representing the official or unofficial view of the Government or the armed forces was published by a third-party for example in the social media accounts of senior military executive (e.g., twitter feeds). Documents from military funded think-tanks or like organisations were considered out-of-scope.[11] This was done to prevent blurred analysis between military organisations and those that have separate funding lines from corporate entities (and therefore separate perspectives, motives and agendas).

A second qualifying principle was that artefacts must be open-source and marked either UNCLASSFIED or have no classification marking. This was considered a limiting factor since classified artefacts may contain valuable information regarding the true extent to which armed forces have responded to climate change. Although this is a perennial problem when analysing closed institutions such as the military, this thesis sought to mitigate the issue (to the extent it could) by sourcing as large a sample from as diverse a cross-section of the military as practicable. Thus, the sample sizes of each case study exceeded 1,500 artefacts.

A third qualifying principle was that artefacts were considered in-scope only if they were published between January 2003 until June 2013. This timeframe was selected for three reasons. First, around 2003 is considered by some scholars as a time when climate change increasingly entered mainstream national security considerations amongst traditional securitising actors such as the military (Brauch and Scheffran 2012, Oels 2012). Secondly, a decade was considered a sufficient length of time to establish if any variation to climate securitisation by the military sector existed. Lastly, the cut-off date was selected on the basis of including Australia's 2013 Defence White Paper and National Security Strategy.

1.5   Thesis Structure

This thesis is presented in five parts. Part One describes the thesis aims and analytical framework. It also "sets the scene" by identifying a gap in scholarly research regarding the

---

[11]   In the Australian context, the Australian Strategic Policy Institute (ASPI) is part funded by the ADF (via the Vice Chief of Defence Force program) and a range of 'corporate sponsors' from Defence Industry including HP, Boeing, SERCO, IBM, Thales and others.

ADF and climate-securitisation. Part Two reviews the scholarly literature from three inter-related fields: climate science (Chapter two), theoretical perspectives of climate securitisation from International Relations and strategic studies (Chapter three) as well as some applied national and regional climate security policies (Chapter four). Examination of the core scientific literature establishes climate change as a strategic challenge from which militaries are not exceptional. The subsequent chapters reveal the contested nature of climate securitisation, both from a theoretical perspective and in an applied setting.

Part Three has three chapters, focusing on the case studies of Australia and the US. Chapter five describes the method that was applied specifically throughout the case studies. The case studies themselves, which form the core research of this thesis, are at Chapter six (Australia) and Chapter seven (US). The case studies do not have individual chapter conclusions *per se*, since these are reserved for Part Four which also contains the case study discussion and analysis. Chapter eight compares the case study results through the prism of securitisation theories introduced at Part One, while Chapter nine assesses the usefulness of the case study method and recommendations for future research. Part Five presents the thesis conclusion.

PART II

LITERATURE REVIEW

Chapter 2: A Strategic Appreciation of Climate Change

Our problems are man-made, therefore they may be solved by man.

John F. Kennedy (1963)

2.1   Introduction

The aim of this chapter is twofold. First, it lays out a key-principles overview of the science of climate change, current and projected levels of anthropogenic GHG emissions and a brief account of the political challenges associated with a coordinated and binding international policy response to limit global warming.

This thesis deliberately starts out with the general science and broader policy response for four main reasons. The first is to define the challenge itself, and to highlight the historical scientific basis of climate science all the while underscoring its strategic nature. While the issues have been known for some time, they have only recently transcended into national strategic (military) calculations (particularly in an Australian context, less so for the US). Secondly, an understanding of the science helps to identify principal actors, terminology and causes of climate change which acts as a ready reckoner for subsequent chapters. The third reason is to provide a broader interdisciplinary context within which the military responses to climate change may be judged and to convey a sense of the scale and complexity of the issues that exist beyond the military sector. This aspect was found to be especially relevant in understanding the politics of climate change. Relatedly, a review of the science was considered an important foundation for security studies; enabling a deeper appreciation and adding a degree of traceability from the root causes of climate change to the securitised contexts examined in later chapters.

The second aim of this chapter is to identify the major environmental threats that arise from anthropogenic warming. It is important to identify these from the outset since many of them relate directly to the security issues identified in subsequent chapters. In summary, this chapter acts as a primer for the remainder of the thesis.

2.2   The Scientific Basis of Global Warming

The foundation science of climate change was laid down in the nineteenth century by naturalists, philosophers and part-timers investigating the 'riddle of the ice age' (Weart 2008, 5). Key discoveries during this period included the basic mechanism of global warming (1827, Joseph Fourier); the discovery of the main greenhouse gases (1859, John Tyndall); the quantification of those gases to global warming (1896, Svante Arrhenius); and the postulation in 1907 that industrial pollution was the main cause. Swede scientist Svante Arrhenius' work is particularly noteworthy from this period where he stated (in 1896) that 'if the quantity of carbonic acid increases in geometric progression, the augmentation of the temperature will increase nearly in arithmetic progression' (Arrhenius 1896, 267). He surmised that a doubling of carbonic acid (carbon dioxide, CO_2) would lead to averaged global warming of $3 - 4$ degrees Celsius (^{o}C).

Figure 2 is an idealised version of the greenhouse effect and shows the Earth's energy balance (Trenberth, Fasullo, and Kiehl 2009).[12] It shows that, of the 341 watts per square meter (Wm^{-2}) of solar radiation reaching the Earth's atmosphere, roughly one-third (102 Wm^{-2}) is reflected back into space, while two-thirds (239 Wm^{-2}) is either reflected or absorbed (and then re-radiated as long-wave radiation) at the Earth's surface (Trenberth, Fasullo, and Kiehl 2009). In the lower reaches of the Earth's atmosphere, GHGs absorb a small fraction of the re-radiated long-wave radiation, scattering heat energy back to Earth. This is called the "greenhouse effect" and, without it, global average temperatures would be about 30^oC colder than current conditions (Cotton and Peilke 2007, 121).

As John Tyndall discovered in 1859, the two most abundant gases in the atmosphere (nitrogen and oxygen) exert almost no greenhouse effect (LeTreut et al. 2007). Rather, the two main GHGs are water vapour and CO_2. Although water vapour is a critically important GHG, humans only have a very small direct influence on the actual amount in the atmosphere. CO_2, by contrast, is now primarily emitted into the atmosphere through the combustion of fossil fuels. As such, CO_2 remains the most important GHG due to a combination of increasing anthropogenic emissions combined with its high 'radiative forcing', high atmospheric concentrations, long residence time (centuries) and global dispersion pattern (Blasing 2012). Methane (CH_4), nitrous oxide (N_2O) and a range of other

---

[12]   For the Earth to be "in balance", energy "in" from the sun must equal energy "out". If the Earth is absorbing more heat from the sun than it is radiating out, then warming will occur.

minor gases including ozone gases, hydroflourocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexamfluoride (SF_6) also contribute as GHGs.
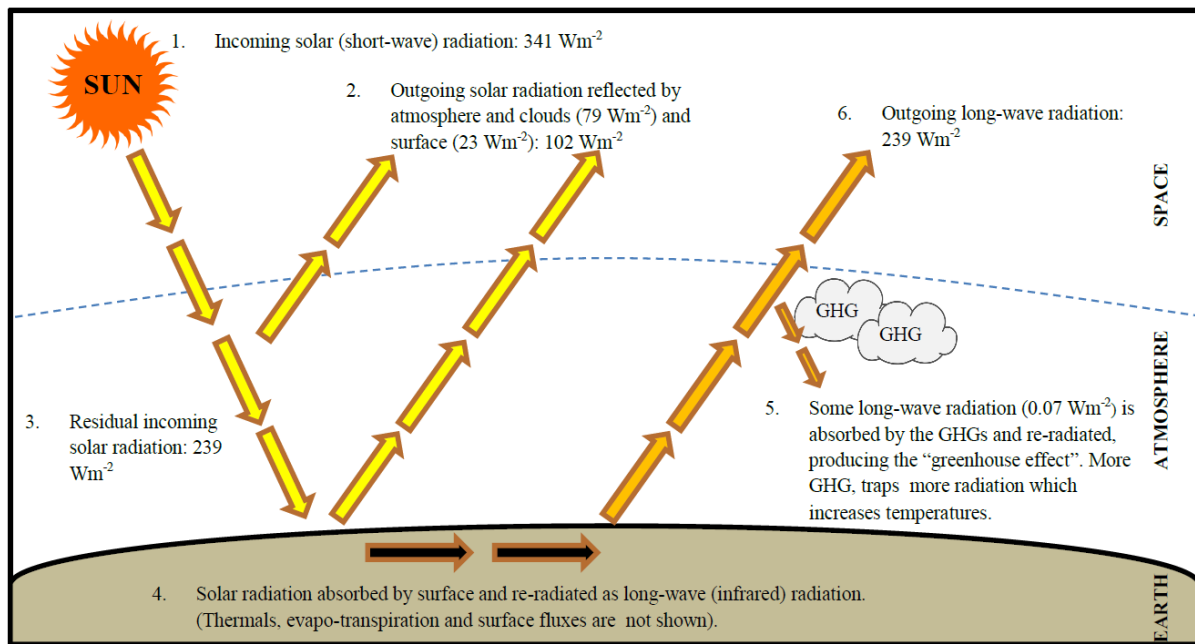
Figure 2. Simplified Earth energy balance. Source: Adapted from Trenberth, Fasullo, and Kiehl (2009).

Perturbations of Earth's energy balance are known as "climate forcing".[13] A climate forcing can occur in one of three ways: (1) changing the amount of incoming solar radiation (e.g., orbital changes), (2) changing the amount of solar radiation that is reflected (albedo), or (3) by altering the long-wave radiation from Earth back toward space (i.e., by changing the level of GHG concentrations) (LeTreut et al. 2007, 96). In 1957 attention was drawn to the latter when US Naval scientists at the Scripps Institution of Oceanography (notably Roger Revelle) published results indicating that sequestration of CO_2 by the world's oceans was not as rapid as originally thought. Further analysis by Charles Keeling showed an accumulation of atmospheric CO_2 and led to the postulation that increasing anthropogenic emissions might produce a positive climate forcing (i.e., warming) by the end of the twentieth century (Weart 2008).

---

[13]   Climate sensitivity (S) is the equilibrium global surface temperature change (ΔTeq) in response to a specified unit forcing (F). It is given by: $S = \Delta T_{eq}/F$. Climate sensitivity depends upon climate feedbacks. Positive, amplifying feedbacks increase the climate response (producing a warming effect) while negative feedbacks reduce the response (producing a cooling effect). For further see Hansen et al. (2011).

Since industrialisation, humans have emitted around 550 GtC into the atmosphere with about 40 percent remaining in the atmosphere, 30 percent in the ocean and 30 percent accumulated in terrestrial sinks (IPCC 2015, 4). Figure 3 shows rising atmospheric CO_2 concentrations since 1960. In 2013, atmospheric CO_2 concentrations exceeded 400 ppm; the highest level in 800,000 years and 40 percent above pre-industrial levels (Tans and Keeling 2015, EEA 2013). The CO_2-equivalent (CO_{2-e}) concentration of all long-lived GHGs (not including water vapour) as at 2012 was 444 ppm CO_2-eq. When factoring in aerosols and other air pollutants that act as 'masking agents', the effective CO_2-eq concentration (2012) was 403 ppm (EEA 2013).
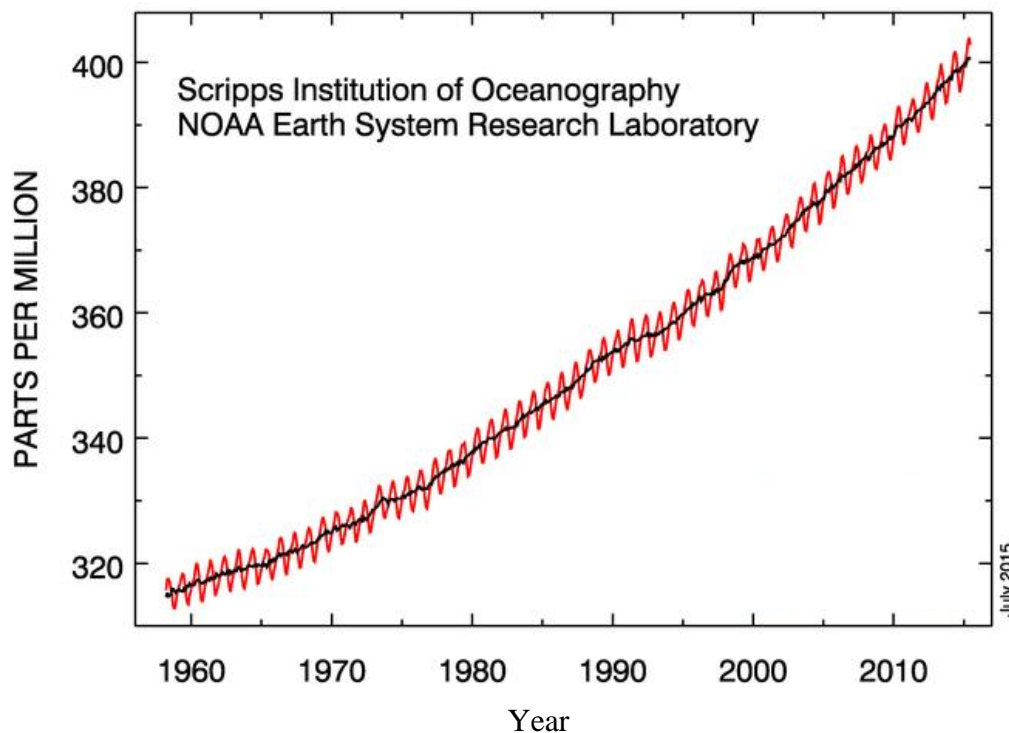
Figure 3. Atmospheric CO2 concentration, 1960 – 2015. Source: Tans and Keeling (2015).

The rising concentrations of anthropogenic GHGs have been the dominant contributor producing an imbalance in the Earth's energy balance. NASAs Goddard Institute for Space Studies (GISS), recorded an overall energy imbalance of about 1.73 Wm^{-2} averaged over the entire surface of the Earth (Hansen et al. 2011). IPCC AR5 placed total anthropogenic radiative forcing over 1750 - 2011 at 2.3 Wm^{-2} (IPCC 2015, 44). Figure 4 shows the relative contributing factors (a) and the net forcing (b). The positive net forcing has resulted in average global surface temperature increase approaching 1°C since 1850. IPCC AR5 declared

'warming of the climate system is unequivocal' and that 'it is extremely likely [that human influence] have been the dominant cause of observed warming since the mid−20th century' (IPCC 2015, 47). Paleoclimate reconstructions, that extend records back millions of years, suggest that further warming can be expected to occur into the future even if anthropogenic emissions were to cease immediately. This is known as "climate inertia", whereupon the world's oceans and ice caps take time to respond to the increased energy content produced by anthropogenic warming (Hansen et al. 2011). Related to this point are the potential for nonlinear threshold effects or "tipping points" including the potential collapse of the Atlantic thermohaline circulation, dieback of the Amazon rainforest, decay of the Greenland ice sheet, collapse of the West Antarctic Ice Sheet, Indian and West African monsoonal shifts and change in ENSO amplitude or frequency (Lenton et al. 2008).
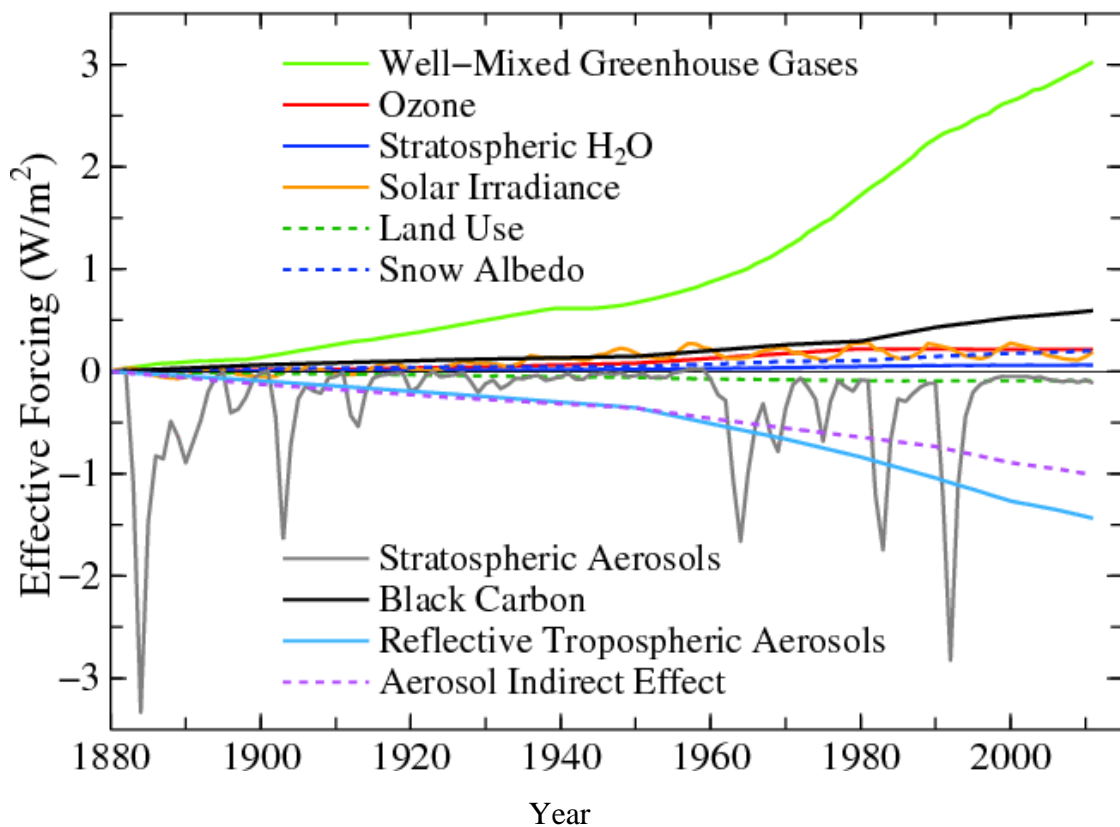
(a). Relative contributing factors to radiative forcing (i.e., by source).
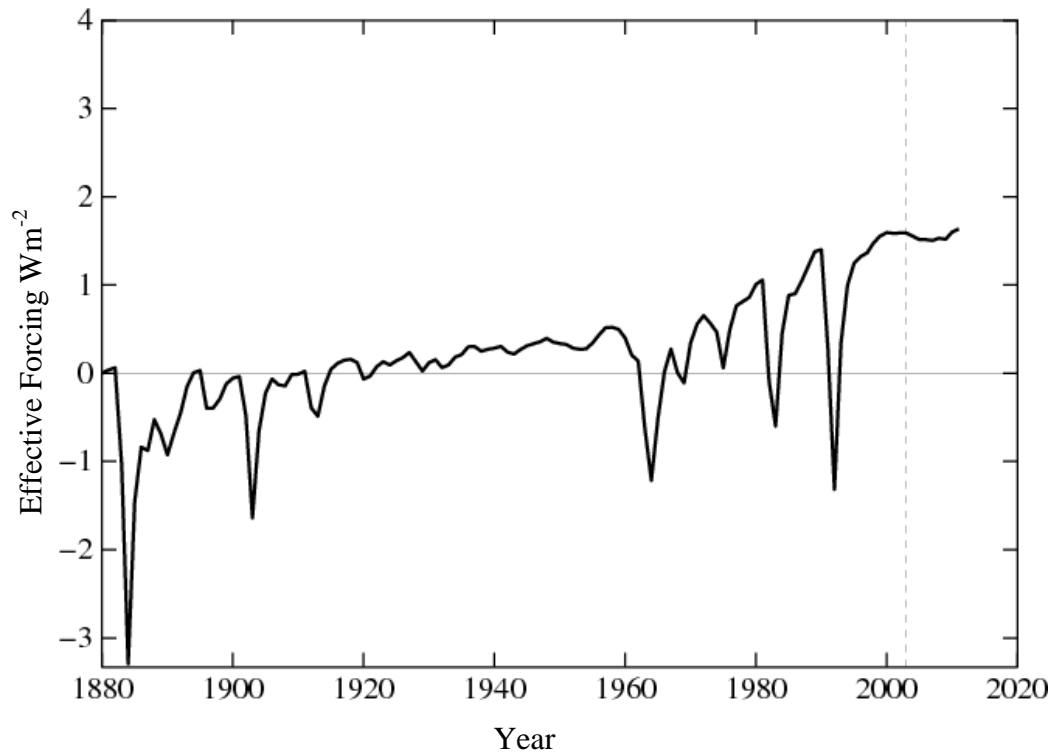
(b).   Net radiative forcing (i.e., all sources combined).

Figure 4. Earth energy imbalance relative to 1880 values. Source: Hansen et al. (2011).

Observed Changes in the Climate System: Strategic Environmental Risks

Having overviewed the fundamental science of climate change it is important to emphasise *observed* changes in the climate system. Although this may be an obvious point, observed records are distinct from projected changes of the climate system. Observations derive from actual measurement while projections are based on assumptions of future emission scenarios (described below). It is important to make this distinction since the observed record provides an indisputable, coherent and consistent body of evidence that rapid environmental change is currently occurring. This is an important aspect for military forces and intelligence assessment agencies since, like other human enterprises, there can be a misplaced tendency to consider the earth's climate as a locally-unpredictable but a globally-stable system immutable to human activity. Inevitably, such thinking frames climate change as a somewhat distant risk that lacks current policy relevance.

The following points, drawn from the IPCC AR5, highlight the key observed changes to planetary climate systems (IPCC 2015, 39 - 42):

- **Atmospheric warming.** The globally averaged combined land and ocean surface temperature show a warming of 0.85°C over the period 1880 – 2012. Between 1951 – 2010 greenhouse gases contributed a global mean surface warming likely in the range 0.5^o - 1.3^oC with contributions from other anthropogenic forcings, including cooling effect of aerosols, likely to be in the range of negative 0.1^o - 0.6^oC.

- **Extreme Weather.** Extreme weather events have become more common since the mid-twentieth century. It is 'very likely' that the number of cold days and nights has decreased and the number of warm days and nights has increased; that the frequency of heat waves has increased; that there are 'likely' more land regions or more intense, heavy and frequent heavy precipitation events.

- **Ocean warming.** IPCC AR5 has 'high confidence' that ocean warming dominates the increase in energy stored in the climate system (accounting for more than 90 percent of energy accumulated between 1971 and 2010). There is 'virtual certainty' that the upper ocean (0 – 700m) has warmed from 1971 – 2010 and that it is 'very likely' that regions of high salinity where evaporation dominates have become more saline.

- **Ocean acidification**. Since 1750 the ocean has taken up 155 GtC resulting in a 'high confidence' assessment of a decrease in ocean surface water pH by 0.1. Consequently, ocean acidification (measured in hydrogen ion concentration) has increased 26 percent.

- **Sea level rise**. IPCC AR5 has 'high confidence' that the rate of sea-level rise since mid-nineteenth century has been larger than the mean rate during the previous two millennia. There is 'high confidence' that glacial mass loss and thermal expansion account for 75 percent of sea level rise. Over period 1901 – 2010 global mean sea-level rose by 0.19m and that the *rate* of sea level rise is increasing ('very likely' mean global sea level rise between 1971 – 2010 was 2.0 mm/yr and between 1993 – 2010 was 3.2 mm/yr).

- **Ice loss**. Anthropogenic influences have 'very likely' contributed to Arctic sea-ice loss since 1970; to the retreat of glaciers since the 1960s; and to the increased

(surface mass) loss of the Greenland and Antarctic ice sheets. The Arctic is particularly vulnerable with summer sea-ice decreasing at a rate of between 0.73 and 1.07 million km^2 per decade ('very likely').

- **Carbon Cycles**. Concentrations of CO_2, CH_4, and N_2O now substantially exceed the highest concentrations recorded in ice cores during the past 800,000 years. The mean rates of increase in atmospheric concentrations over the past century are, with 'very high confidence', unprecedented in the last 22,000 years.

2.3   Anthropogenic Emissions and International Political Response

Having reviewed the scientific basis of climate change, this section briefly reviews global emissions (current and projected) as well as introducing the political challenges of reducing them. As will be shown in the case studies (Chapters six and seven), understanding the politics of climate change, particularly surrounding issues of attribution and responsibility, are important in contextualising the climate response by the Australian and US militaries.

Anthropogenic emissions

Since industrialisation (1750), the primary source of anthropogenic GHG emissions has been the extraction and combustion of fossil fuels and (to a lesser extent) land-use change (e.g., forestry). Total cumulative anthropogenic emissions since industrialisation is placed by the IPCC at between 470 – 640 GtC (IPCC 2015, 4). On an annual basis, anthropogenic emissions today are around 10 GtC (Qu´er´e et al. 2013, ESSP 2012).[14] These emissions are the highest in human history and are increasing at a rate of almost three percent a year (which is also increasing). The main emissions types are coal (43 percent), oil (34 percent), gas (18 percent) and cement (5 percent) (ESSP 2012, Steffen and Hughes 2011, 17). Figure 5 shows the main sources of emissions since mid–nineteenth century by source. In the period 2000 – 2011, coal was the fastest growing type of emissions, growing at 4.9 percent per annum

---

[14]   1 Pg = 1 Petagram = 1 x 10^{15}g = 1 billion metric tonnes = 1 Gigatonne (Gt).
1 kg carbon (C) = 3.67 kg carbon dioxide (CO_2).
1 PgC = 3.67 billion tonnes CO_2 = 3.67 GtCO_2.

(ESSP 2012). Figure 5 also shows the significant increase in fossil fuels after the Second World War, whereupon it overtook land-use change as the primary emission source of CO_2.[15]
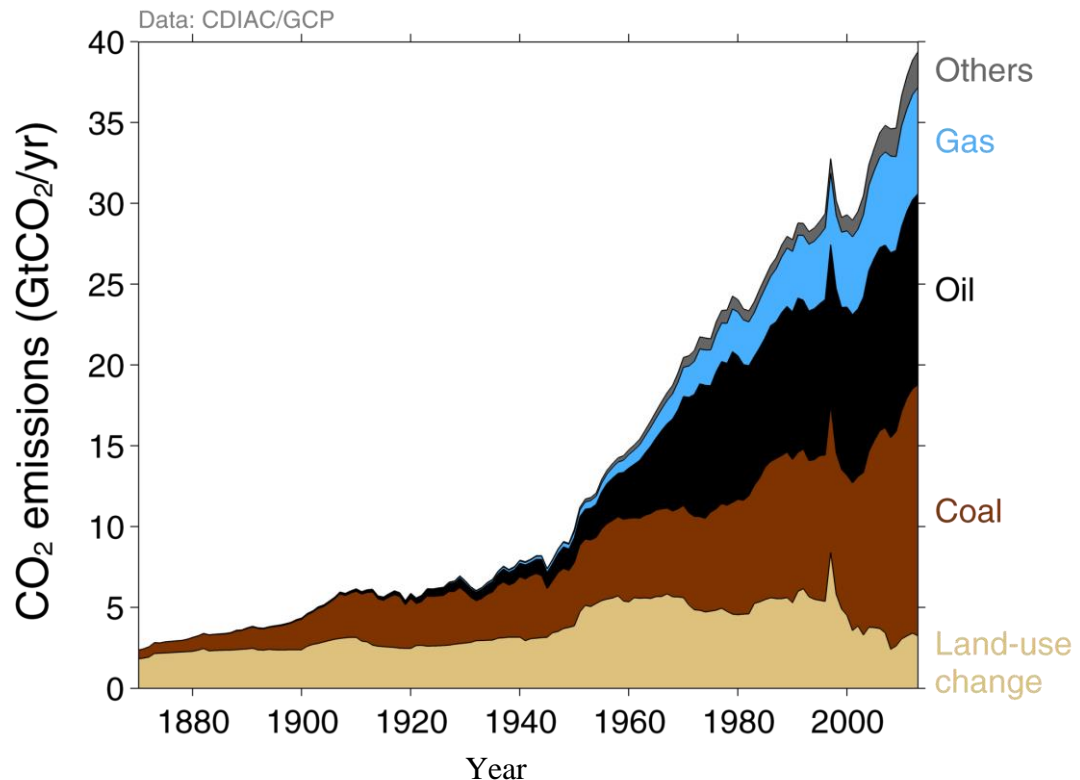
Figure 5. Total global GHG emissions by source. Source: Quéré et al. (2014).

Establishing responsibility for which nations should bear the cost of reducing emissions has produced sharp political divisions within and between nations. While historical responsibility (Figure 6, 'Cumulative 1751 – 2012') has rested with the major industrialised and developed countries such as the US and European nations (Figure 6, 'EU28'), current and future emissions growth are increasingly attributed to BASIC (China, India, Brazil and South Africa) and other developing nations (Figure 6, 'Production 2012', 'Consumption 2012' and

---

[15]   Analysis by the author on size of US and ADF military CO_2 size, showed if the US military were a country it would rank 38th in the world, larger than the Philippines and about equivalent to Iraq—noting that this does not include emissions from the industrial and commercial sectors that support US military and Departmental operations (Thomas 2011). If the Australian military were a nation it would be 157th, larger than many small island Pacific nations. Moreover, militaries are a contributor to global warming through their operational and homeland emissions. Indeed, many senior US Defense officials regularly cited the US DoD as being the world's single largest GHG emitting organisation. The ADF has also been framed in this manner. Thomas (2011) identified the ADF as being an equivalent emitter to an Australian domestic airline (Virgin Airlines) and as being in the top 50 national (Australian) emitters. Also, the ADF emits roughly 60 percent of total government emissions. Research of the literature undertaken during this thesis encountered few instances where global military contributions had been calculated and this has been identified by this thesis as an area requiring further research.

'Population 2012'). Figure 7 illustrates this point, showing that recent growth rates in Chinese and Indian emissions outstrip those of the historically responsible nations. Indeed, in 2011 China was responsible for 80 percent of emissions growth and currently emits roughly 28 percent of global GHG emissions (increased 270 percent since 1990). As of 2013, Chinese emissions were almost double that of the US (Quéré et al. 2014). Furthermore, the International Energy Agency (IEA) has forecast that China's CO_2 emissions will grow 40 percent by 2035 (IEA 2012, 24). By comparison, US emissions (16 percent of world total) have tapered since mid-2000s following the so-called shale gas revolution that has witnessed a reduction of coal and an uptake of lower-emitting natural gas sources (ESSP 2012).
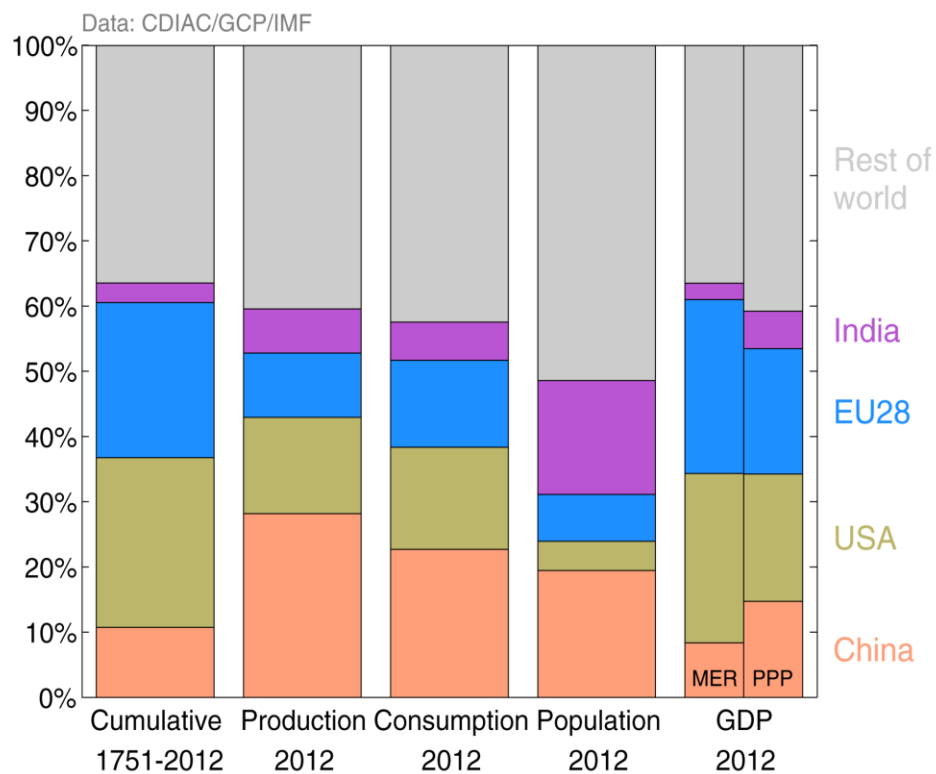
Figure 6. Different perspectives on global emissions.[16] Source: Quéré et al. (2014).

---

[16]   GDP, Gross Domestic Product (GDP) in Market Exchange Rates (MER) and Purchasing Power Parity (PPP).
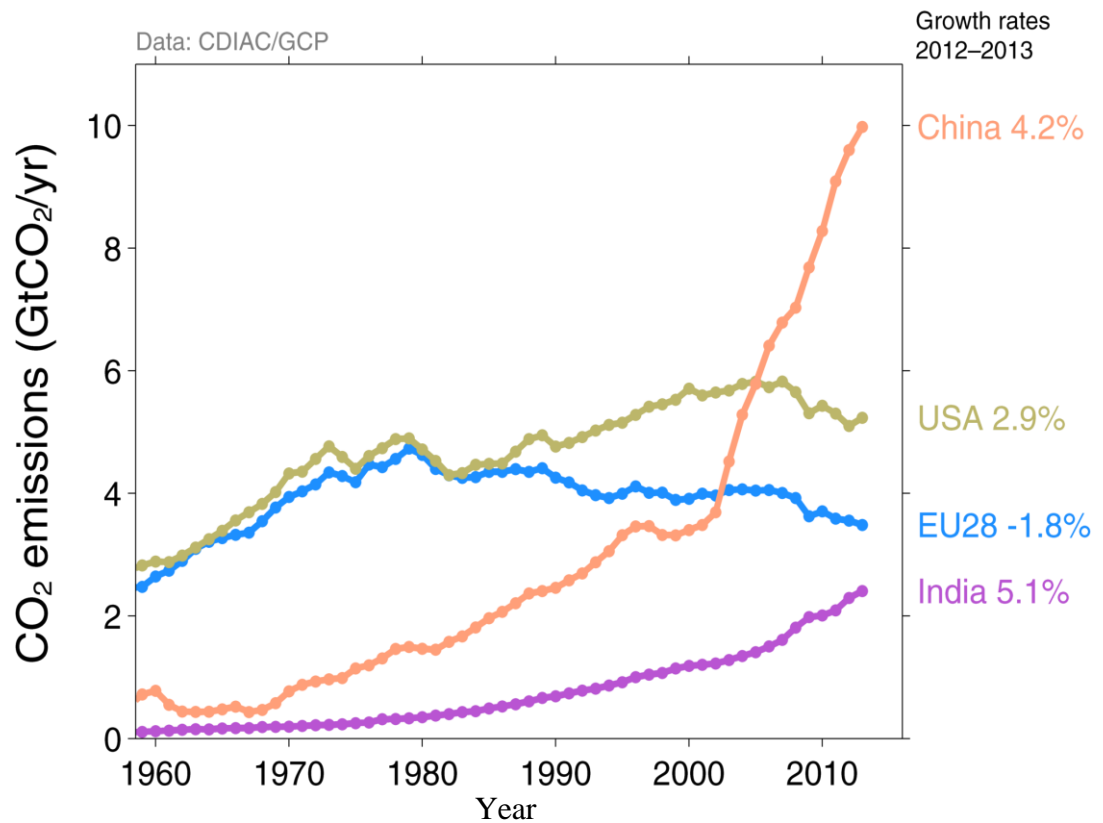
Figure 7. Major global emitters of CO_2.[17] Source: Quéré et al. (2014).

Alternate emissions perspectives include national per capita basis, territorial basis (i.e., those occurring within sovereign borders) and emissions produced offshore. Developing nations, for instance, point-out that developed nations continue to account for the highest emissions on a per-capita basis (see Figure 6, 'GDP 2012').

Emissions Trajectories

Emissions scenarios have been developed to provide policy makers with plausible descriptions of how future climate scenarios may unfold. Such scenarios are generally derived from computer models (incorporating the knowledge of the physical systems) and using parameters from narrative storylines that take into account different socio-economic and technological changes, energy and land-use change decisions as well as differing emission rates. Scenarios ultimately inform policy makers on the plausible possibilities, types

---

[17]   'Bunkers' are emissions from fuel used for international aviation and maritime transport. Non-Annex B countries are those not subject to Kyoto Protocol, see
http://cdiac.ornl.gov/trends/emis/nonannexb_countries.html)

and locations of climate impacts and what mitigation or adaptation response measures might be required. An understanding of these scenarios is particularly important for military forces as well as national intelligence and strategic assessment organisations for similar reasons. Specifically, it would enable defence planners to gain a strategic appreciation into the potential risks to homeland or overseas military infrastructure that might be affected by sea-level rise or increased frequency and intensity of natural disasters. Furthermore, if used in combination with current threat-based scenario planning tools, the military and intelligence assessment community could gain greater understanding of how climate change will impact on human and national security, thereby contributing toward formulations of a strategic response.[18]

Emissions scenarios, called Representative Concentration Pathways (RCPs), were developed for IPCC AR5 and remain the most credible publicly available work on the subject (Rogelj, Meinshausen, and Knutti 2012). The RCP names are given after a possible range of radiative forcing values in the year 2100 (2.6, 4.5, 6.0 and 8.5 Wm^{-2}, respectively). Figure 8 shows the various emissions scenarios with the expected temperature increase at 2100 should a given scenario unfold. RCP scenarios (Figure 8) indicate that to have a 'likely chance' of keeping temperatures of below $2^{o}C$ to avoid 'dangerous climate change', then current emissions need to *peak* about *2020* and sustain a steady reduction until net negative emissions are achieved by around 2070 (RCP 2.6).[19] Even if a more plausible scenario (RCP4.5) were to unfold, expectations on planetary warming still range between $1.7 – 3.2^{o}C$ by the end of this century.

---

[18]   In 2012 the author took part in a Climate Change workshop convened by the Australian Defence Force that included a brief discussion on the possible inclusion and impact of climate scenarios in strategic-military planning. While certain Government agencies were inclusive of such aspects in their planning, the military representatives were unperturbed and priority remained on more traditional (i.e., state) based threat scenarios.

[19]   Such projections exclude possible geo-engineering techniques which could be used in the future to 'remove' GHG from the atmosphere.
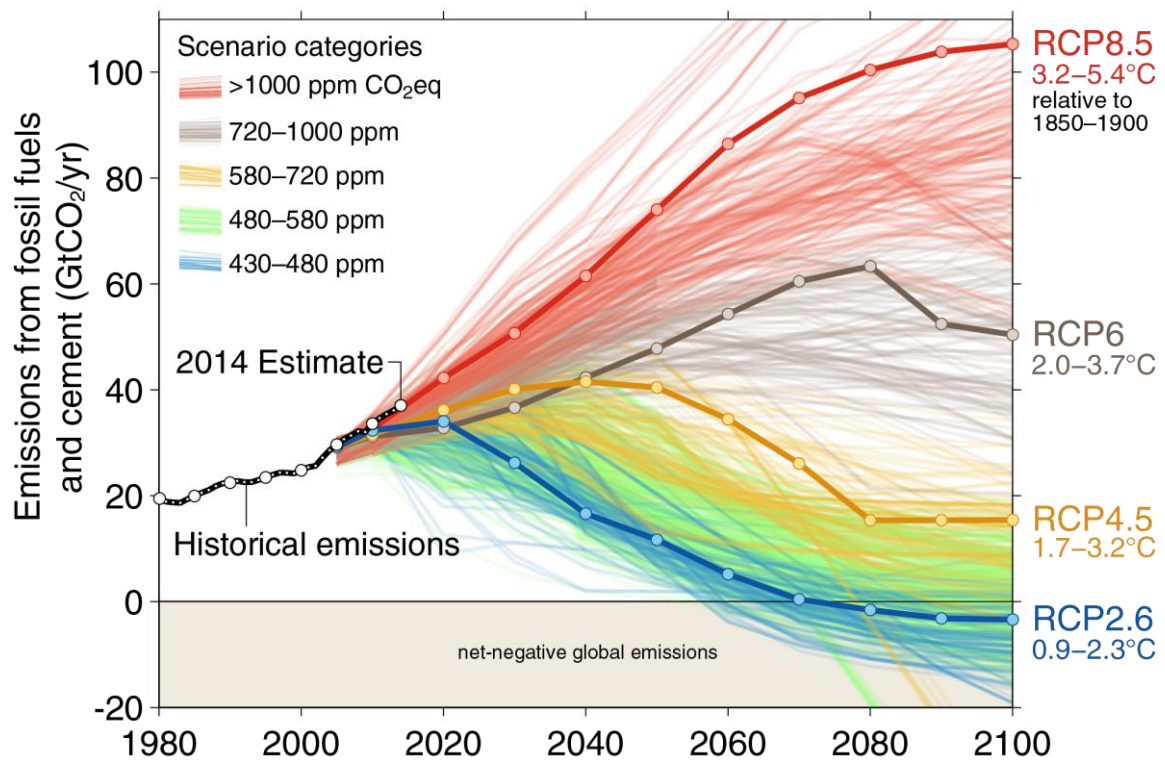
Figure 8. Representative Concentration Pathways, 2014 – 2100. Source: Quéré et al. (2014).

Based on recent historical emissions however, such a scenario appears unlikely. Earth System Science Partnership (ESSP) note that anthropogenic emissions have tracked at the top end of all emissions scenarios developed since 1985 (ESSP 2012). Currently, emissions are on path to a 'likely' temperature increase of 3.2 - 5.4°C by 2100 (i.e., RCP8.5). In 2006, Sir Nicholas Stern cautioned that a BAU scenario could treble by the end of the century, 'giving at least a 50 percent risk of exceeding 5°C global average temperature change during the following decades' (Stern 2007, iv). In 2011 the International Energy Agency (IEA) estimated that under BAU temperature increases of 6°C *or more* are 'likely' (IEA 2011, 2). Of special emphasis, IPCC AR5 stated that although warming is unlikely to exceed 4°C for RCP2.6, RCP4.5 and RCP6.0 (high confidence) but is *about as likely as not* to exceed 4°C for RCP8.5 (medium confidence) (IPCC 2015).

This final assessment is worth emphasising—current global scientific assessment has concluded that on business-as-usual global average surface temperatures are as likely as not to exceed 4°C by 2100. Projections such as these saw a joint statement by the national academies of science from the world's G8+5 nations warn 'climate change is happening even faster than previously estimated … The need for urgent action to address climate change is now indisputable' (G8+5 National Academies 2009). Placed in a larger context, Will Steffen,

Paul Crutzen and John McNeill make the point that human activity—and global warming in particular—now rival the 'great forces of Nature' and that the Earth is transitioning away from the postglacial geological epoch of the past twelve-thousand years (the Holocene) which gave rise to civilisation to a new geological epoch ('planetary *terra incognita*') known as the Anthropocene (Steffen, Crutzen, and McNeill 2007, 614 - 615). The implications of this shift will be fundamental to the security and stability of humankind.

International Response to Climate Change

Scientific and political recognition of the need to reduce GHG emissions (and limit global warming) first arose in the late 1970s. This early momentum culminated in the establishment of the IPCC (1988) and UNFCCC (1992). These institutions are regarded as the main fora for collective international action to reduce emissions and address the global consequences of climate change. The UNFCCC, in particular, was mandated to establish internationally binding quantitative emissions reductions via international agreements ('protocols'). [20] Parties to the UNFCCC are classified as either 'Annex I Parties' that mainly includes developed countries and those defined as 'economies in transition' (EIT), as 'Annex II Parties' consisting of developed countries from Annex I (but not EITs), or as 'Non-Annex I' countries mostly made up of developing countries. The main forum of the UNFCCC is an annual meeting between country representatives known as the Conference of the Parties (COP) that have been held on an annual basis since 1995.[21]

The most prominent outcome from UNFCCC has been the Kyoto Protocol that sought a binding "top-down" international agreement to reduce GHG emissions according to underlying national differences in emissions, wealth, capacity and historical responsibility (enshrined in the principal of 'common but differentiated responsibilities' (UNFCCC 1997,

---

[20] The UNFCCC came into force in March 1994 and, as of 2014, had 196 signatories. The IPCC remains the primary international authority responsible for synthesising global climate change science from peer reviewed published scientific and technical literature. Its mission is to publish the latest scientific updates, identify uncertainties in climate science that require further research and to prepare response policies. Since 1990, the IPCC has reported via a series of Assessment Reports (1990, 1995, 2001, 2007 and 2013) that represent the latest global scientific research on climate change. Each Assessment Report has noted with increasing conviction that climate change is occurring, that humans are responsible and that its consequences will be serious and far reaching.

[21] A Meeting of the Parties (MOP) has also been held annually in conjunction with COPs. The MOP is a meeting of those countries who have emissions responsibilities under the Kyoto Protocol.

Article 10)).[22] Though the IPCC has previously trumpeted the Kyoto Protocol (Barker et al. 2007, 89), criticism has been widespread and variously decried as a 'narrow, thin, and in most of the world, [an] ultimately symbolic' measure (Keohane and Victor 2011, 10). Specific criticism has included the non-ratification of the US, the exemption of Non-Annex I countries and an inability to keep apace with structural shifts in the global economy, the exemption of shipping and aviation industries, a lack of a true enforcement mechanism ("stick") for not meeting targets, and the development of "bottom-up" initiatives as offering far more flexibility (Diringer 2011). Given that global emissions are now more than 50 percent greater than at the creation of the UNFCCC, gives credence to these criticisms.

In response, the UNFCCC adopted a more flexible approach in the lead up to the 2015 COP 21 (Paris), particularly with respect to the concept of Intended Nationally Determined Contributions (INDCs). Under this process, countries were asked to openly declare what actions they intend to take under a new global agreement which take into account unique national circumstances. In this context, it is envisioned that greater transparency will encourage nations to positively compete for emissions reductions. Nonetheless, the optimism surrounding INDCs remains untested in the international arena with preliminary assessments indicating that INDCs for COP 21 are not enough to keep planetary warming below 2°C (Hannam 2015).

Irrespective of the *type* of mechanism in a post-Kyoto world, any future success of a global agreement must overcome perceptions of unfairness (real or imagined) as well the ability to account for the rapidly evolving structural changes in the international system that has made UN styled consensus-based agreement far more difficult to achieve (Leal-Arcas 2011). Some scholars have framed the issue as an ethical dilemma (Baer et al. 2010, Gardiner 2010b, Jamieson 2010, Caney 2010) which have been used to promote the idea that developing nations should bear responsibility since 'given the historical responsibility for cumulative emissions of GHG in the developed world [and resultant high levels of prosperity], inaction implies a neglect of overall responsibility and ethical considerations' (Rajendra K. Pachauri quoted in Gardiner 2010a, 7). Others, however, look to future projections and consider the

---

[22] In total, there are 191 Parties that are signatories to the Kyoto Protocol (of which some nations have since withdrawn) which was adopted in 1997 and came progressively into force from February 2005. Of the countries that ratified the Kyoto Protocol, 37 of them undertook legally binding emissions reductions of at least 5 percent below 1990 levels for the first commitment period (2005 – 2012) with the second commitment period (2013-2020) increasing commitments to at least 18 percent below 1990 levels (UNFCCC 2012).

relative decline of developed nations against developing ones and a requirement for structural change in how to address the costs of adaptation and mitigation. Rafael Leal-Arcas, for instance, cites that approximately 50 non-Annex I countries now have higher per capita incomes than the poorest of the Annex I countries with Kyoto commitments; 40 non-Annex I countries rank higher on the Human Development Index in 2007 than the lowest ranked Annex I country; and that developing economies are out-performing many industrialised countries who have remained in economic stagnation or recession since the 2007 Financial Crisis (Leal-Arcas 2011). These points are reinforced by the IEA forecast that in the next 25 years the non-Annex I countries will account for 75 per cent of all global emissions (IEA 2011). Fundamentally, shifts occurring in international relations between the major powers have made consensus-based agreement more difficult to achieve:

> In the UN machinery, consensus among the parties is required ... The turn today towards a multipolar world indicates that approaches based on consensus are unlikely to produce results. No country, or group of countries, today is in a position to forge a global deal … of environmental goals (Leal-Arcas 2011, 14).

Leal-Arcas then goes to the crux of the issue by pinpointing the enduring nature of state self-interest:

> When negotiating trade agreements, parties have an interest to negotiate as they believe they will benefit from the agreement. By contrast, in climate change negotiations, most parties see mitigation as a burden to their economies, i.e., *they negotiate to ensure that they do not have to do more than other parties in the negotiation* (Leal-Arcas 2011, 43; emphasis added)

Australian political-economist Ross Garnaut has likened this situation as a case of 'prisoner's dilemma' whereby the international community remains split into contending blocs, refusing to cooperate even though (in the medium to long-term) it remains in everyone's best interest to do so (Garnaut 2008). These insights reinforce what Harriet Bulkeley and Peter Newell have described as the 'intractacle problem' that climate change presents for global governance (Bulkeley and Newell 2010). These authors note that climate change is one of

unique complexity where multiple scales of political decision making, the fragmented nature and blurred roles of states and non-state actors and the deeply embedded nature of emissions production and consumption make many aspects of climate change an issue beyond the capacity of traditional governance processes. It is a theme highlighted by other scholars (Knieling and Filho 2013) and in a related manner has been identified as a 'governance trap' in which climate change is simply 'too big a problem' resulting in a situation where 'the governing and the governed seek action from the other but where none is forthcoming' (Newell et al. 2015, 536). Moreover, climate governance continues to remain in a 'state of flux' (Bulkeley and Newell 2010, 108 & 110) with recent assessments noting that a 'resurgence of climate scepticism, and pessimism about the possibility of collective action' has produced a 'crisis of climate politics' (Newell et al. 2015, 536). While COP 21 gave the appearance of assuaging some of these concerns, Garnaut's assessment that climate change remains 'harder than an y other issue of high importance that has come before our polity in living memory' remains a potent descriptor (Garnaut 2008, xvii).

The fundamental point to be made for this thesis is that since the realisation of the problem some 40 years ago, the collective global political order has systematically failed in its efforts to reduce emissions and thereby limit global warming and its attendant consequences. The failure of *normal* politics has led some to press for the political order to adopt a war-footing response—widening the scope and raising the profile and urgency of the issue such that emergency measures may become justified (UNGA 2008, Spratt 2012). In this respect, the securitisation of climate change may be viewed as but another policy arrow in the political quiver.

2.4 Chapter Conclusion

Anthropogenic emissions of greenhouse gases since 1750 have been the dominant contributing factor of present day global warming. Global warming is already wreaking change to the earth's climate systems through increased global surface temperatures, sea-ice and glacial loss, sea level rise, ocean acidification, increased precipitation, extreme weather and a range of other environmental impacts. These changes are projected to take place at increasing rates and intensity across the twenty-first century as global emissions increase. Currently, emissions are tracking on a BAU for a worse-case scenario such that IPCC AR5 estimated that it will be as likely as not that global average temperatures will exceed 4^oC by

2100. International policy response to reduce emissions has been stymied by self-interest. Developing nations, seeking to lift their people out of poverty, have sought access to cheap forms of electricity, predominately supplied through large scale uptake of fossil fuels. Developed nations, who are responsible for the majority of historical emissions, have had a mixed record in shifting their economies away from fossil fuels. All told, despite the knowledge that rising emissions will cause continued global warming, global political leaders have been unable to stem increasing fossil fuel consumption. Attempts at top-down global agreements via the UNFCCC have so far failed to bring about meaningful reductions in emissions.

What relevance does this conclusion have for this thesis? First, it identifies climate change as a major—if not *the*—strategic challenge for the twenty-first century. By "strategic" it is meant that there have been no previous challenges on the pervasiveness, penetration or scale presented by climate change. Shannon O'Lear and Simon Dalby state that climate change and its implications have 'had no obvious analogy in human affairs' (O'Lear and Dalby 2016, 3) This point cannot be underestimated nor is it grandiloquence. The emphatic statement from global scientific climate experts that there is every likelihood that planetary temperatures will increase by 4°C by the end of this century is *unprecedented* in civilisational history. This point serves to emphasise not just the scale of the problem but also the relative urgency if humankind is to reverse the trajectory of current emissions pathways. These are important concepts for this thesis as it seeks to examine how the US and Australian militaries have approached climate change and to understand whether the two militaries have placed greater or less emphasis on both the scale and urgency of the threat than their political masters.

The second point—and of particular relevance to this thesis—is that climate change will present (if it is not already doing so) wide-ranging security challenges. In this respect, military forces are not exceptional to debates surrounding climate change. There is now sufficient evidence to suggest militaries have a requirement to understand not just current climate impacts but also how future climate change will remake existing socio-political orders. In essence, militaries exist primarily as institutions designed to anticipate and respond to strategic risks that threaten the sovereign interest of their nation-states. In this respect, greater understanding of how militaries are responding to climate change is an important aspect in gauging whether the militaries are doing too much, just enough or otherwise too little in warning the public and influencing political elite on the importance of the strategic

risks of climate change. To better understand this aspect, the thesis now turns to examining climate change as a security issue.

Chapter 3: Climate Security Discourses within Security Studies

3.1   Introduction

Having examined the science of climate change and appreciated its strategic nature, this chapter examines climate security discourses in the context of different academic perspectives (namely from the field of International Relations (IR) and its sub-field, International Security Studies).[23] The chapter is broadly intended to provide a bridge between the physical climate sciences at Chapter three and the applied cases of climate securitisation presented from Chapter four onwards. Accordingly, this chapter focuses mainly on the academic concepts emanating from scholarly literature and reserves examination of policy-oriented literature for later chapters.

3.2.   A framework of climate security discourse(s)

This section outlines the main scholarly conceptualisations of climate security discourses. Matt McDonald defines these discourses as 'frameworks of meaning that provide the lens through which climate change is conceptualized and addressed in particular contexts' (McDonald 2013, 42). Following McDonald's lead, a useful definition of discourse is provided by Hajer who defines it as 'a specific ensemble of ideas, concepts and categorizations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities' (Hajer 1995, 44). Hajer further suggests that while there can exist multiple discourses or conceptualisations of issues, some discourses become more dominant than others. As McDonald notes, this is crucial since it has political implications whereupon hegemonic discourses can 'serve to legitimize some practices and the actors engaged … while marginalizing others' (McDonald 2013, 43). A good example of this (in the context of this thesis) is how climate change may be framed as a national security threat thereby legitimising military responses or, as a minimum justifying an increase in resources to the military sector to deal with "new" climate threats. This may marginalise other climate change discourses which might otherwise lead to alternate pathways (for example community adaptation strategies or emphasis on mitigation programs). Hayes and Knox-Hayes cite related examples of how the securitisation of

---

[23]   For an excellent account of the history and typology of IR and International Security Studies see Buzan and Hansen (2009).

development policy and of HIV/AIDS has had negative outcomes (Hayes and Knox-Hayes 2014).

While a number of scholars have proposed different ways to conceive of climate-security (Floyd 2008, Hulme 2008, Trombetta 2008, Brauch 2009c, Dalby 2009, Detraz and Betsill 2009, Diez and Grauvogel 2011, Hardt 2012, Oels 2012, Trombetta 2012, Lucke, Diez, and Wellmann 2013, McDonald 2013, 2015, O'Lear and Dalby 2016), this thesis identifies four broad climate-security discourses as revolving around the different ideas on the referent object of security.[24] Namely, climate change as a threat to the referent objects of international society, to nation-states, to people and to the environment.

McDonald (2013) has provided a succinct framework for how these different discourses are defined in terms of referent object, key threats, agency and response (Table 1). This framework has been modified here to include the different academic "lenses" (traditional / narrow or critical / wide) which inform these discourses. The framework also identifies a useful "analytical perspective" which exists within these broad lenses and for which the various climate security discourses are considered throughout this chapter. (Because it is beyond the scope of this thesis to examine several, only key ones are included). By placing climate security discourses in the setting of security studies this chapter attempts to establish a deeper epistemological basis of understanding climate security. 'Epistemology', noted Buzan and Hansen, is important since it concerns the 'question of how one should study security' (Buzan and Hansen 2009, 32). Given its centrality, the remaining part of this chapter therefore addresses climate security discourses in the context of the different security studies perspectives and thereby attempts a variation on McDonald's framework.

---

[24]   Referent objects may be "things" that possess a legitimate claim to survival. An example of a referent object in traditional IR approaches is the *state*.

Broad Lens	Analytical Perspective	Discourse	Referent	Threat	Agent	Response
Traditional / Narrow	Neo-Liberal Insitutionalism	International Security	International Society/ (Nation-State)	Conflict, global stability	International Organisations	Mitigation and Adaptation
Traditional / Narrow	Realism	National Security	Nation-state	Conflict, sovereignty, economic interests	State	Adaptation
Critical / Wide	Human Security / Political Geo-ecology	Human Security	People	Life and livelihood, core values and practices	States, NGOs, international community, communities, international organisations	Mitigation
Critical / Wide	Environmental Security & Political Geo-ecology	Environmental Security	Environment / Biosphere	Challenges to equilibrium associated with contemporary political, social and economic structures	People, changing political consciousness	Fundamental reorientation of societal patterns and behaviour.

Table 1. A framework of climate security discourses mapped to Security Studies   . (Adapted from McDonald 2013, 49)

3.3 Climate Security from Traditional (Narrow) Security Perspectives

Traditional approaches to security studies offer important insights into current climate security discourses. For the purpose of this chapter, "traditional" approaches are those that place the nation-state as the key referent object, with a focus on the political, military and economic sectors. A key concept of traditional approaches are how nation-states set about achieving "relative" or "absolute" gains within an international system defined by its anarchical nature. Arguably, recent scholarly works have overlooked or discounted what traditional perspectives may offer climate security discourses and have, instead, preferenced the use of critical approaches (Floyd 2012).[25] While various reasons have been made for why this is the case (Lacy 2005, O'Neill 2009, Habib 2011, Floyd 2012), there are equally valid reasons for them to be considered in analysing climate security discourses, particularly as they apply to understanding climate change as a threat to international and national security. First, traditional approaches that have their antecedents in classical IR theory continue to serve an anchor points for practioners and policy makers alike. Realism, for example, has been (and continues to be) particularly influential in explaining (and framing) US national security policy (Waltz 1979, Waltz 1990, Morgenthau and Thompson 1985, Ikenberry 2002, Gilpin 2005).[26] Although IR has been less prominent in climate security discourses, its enduring appeal and influence amongst the public and policy makers alike merits attention (Lacy 2005, Drezner 2008, Dunne and Schmidt 2005). Secondly, traditional approaches offer a potentially wider theoretical basis from which to conceptualise and to *explain* climate change discourses (O'Neill 2009). And so, while critical approaches offer normative prescriptions of how the world *ought* to be, traditional perspectives can provide pragmatic 'problem-solving' outcomes useful for policy makers (ibid, 17). As realism can inform on national security issues, liberalism can provide a useful explanatory basis for understanding the central role of international institutions and orgnisations in responding to climate change. Thus, traditional perspectives lend themselves to informing not just climate *security* discourses (as in the instances of US national security policy or UNSC climate security debates) but other central aspects such as climate governance or economics. In sum, traditional approaches shed light on key questions of climate security: What are the interests

---

[25] Using Buzan and Hansen's (2009) typology of International Security Studies, most literature on climate security discourses appear to preference 'Widening and Deepening' over 'traditional' approaches.

[26] This chapter does not provide a definitive account of the many varied IR theoretical positions nor can it address the particular nuances, 'sub-schools' or debates that have proliferated in recent times. Instead, this chapter is illustrative rather than exhaustive, and provides a macro-view of the key IR perspectives and how they may inform future climate security debates, particularly as they relate to the military.

of nation-states? What strategies might they adopt? Who are the major players? What role(s) might the military and other such security collectives and institutions have?

The remainder of this chapter therefore seeks to overview climate security discourse in a different way than put forward by previous scholarly efforts. It uses traditional approaches to survey the key theoretical perspectives of IR (Neo-Realism and Neo-Liberal Institutionalism) as they relate to the climate change and the climate security discourse. These sections begin by providing a brief account of the theoretical drivers and then how they might be applied to climate security discourses. The remainder of the chapter then surveys climate security discourses of human and environmental security drawing on literature from critical approaches, including the meta-perspective of 'political-geo-ecology'. Central throughout all these sections is the question of how these respective approaches inform or situate the *military* sector within climate security discourses.

Climate change as a threat to International Society from the perspective of Neo-Liberal Institutionalism[27]

One of the most visible climate security discourses is climate change presented as a threat to international peace and security (UNSC 2007, UNGA 2009, UN Secretary-General 2009, UNSC 2011a). In this discourse, climate change is framed as a threat to international society as well as highly vulnerable nation-states such as low-lying islands or those prone to desertification, sea-level rise, inundation or extreme weather. McDonald notes that international organisations are seen as key agents for providing security and that international cooperation regarding mitigation and adaptation form a 'crucial to the response to this threat' (McDonald 2013, 47). Given the focus on international security and international organisations within this discourse, this section examines climate change as a threat to international security through the prism of neo-liberal institutionalism. To do this, it is necessary to briefly sketch the main tenets of the perspective itself and then outline how it contributes to our understanding of climate securitisation.

Neo-liberal institutionalism first emerged in the 1970s and 80s when IR theorists sought to explain the relative stability of international economic co-operation despite uneven wealth

---

[27] This version of liberalism should not be confused with neo-conservative interpretations of neo-liberalism typically associated with a singular focus on free markets, de-regulation and laissez-faire government and prominent since the 1980s in the US, UK and (to a lesser extent) Australia (for a brief discussion see Dalby, Brauch, and Oswald Spring 2009, 784 - 785).

and power distribution of inter-state relations (Daddow 2009, 96). Key thinkers included Robert Keohane and Joseph Nye in *Power and Interdependence* (1977) as well as Stephen Krasner in *International Regimes* (1983) and John Ruggie's (1982) concepts of 'embedded liberalism'. These approaches broadly emphasise that although the world system is anarchical, increasing levels of complex interdependence and interconnectedness ensures that states behave in a rational. While neo-liberal institutionalists identify the state as an important actor, they stress the role of transnational actors, international regimes, international governmental organisations and non-governmental organisations. The world, according to this view, is not bound by immutable laws of sovereignty and the pursuit of power, but a continual negotiation for *absolute gains* through cooperative arrangements occurring between many layers of governance arrangements, commerce, trade, law, environmental cooperation and other such mechanisms. This approach concedes that cooperation might fail if there is a lack of perceived mutual interest and critics have argued the its weakness is cheating or non-compliance by other states (Mearsheimer 1995, 17).

Neo-liberal institutional approaches also downplay the role of the military as a tool of statecraft and disagree with realist notions of "high" versus "low" politics (Lamy 2005, 213). Neo-liberal approaches to security stress cooperation and concepts of "common security" dominant in European and UN discourses. Jürgen Scheffran noted this approach evolved from East-West rivalry in which 'states can no longer seek security at each other's expense; it can be obtained only through cooperative undertakings' (Palme Commission 1982, 139 in Scheffran 2011: 745). In this view, rather than 'simply taking unilateral decisions about its own military forces', nations must work together and graft joint responses that possess 'unprecedented levels of cooperation' (Blackaby et al. 1986, 203 in Scheffran 2011: 745). Cornelia Navari highlights how neo-liberal institutionalists preference security instituions over alliances since rather than threats dealt with by concepts of power, they are circumvented through common membership of security institutions that enable threats to be 'diffused through integration, by reinsurance and by conflict resolution' (Navari 2008, 43).

What do neo-liberal institutional approaches contribute to climate change as a threat to international society? First, this approach presents a powerful basis for explaining the development of international climate change institutions focused on climate mitigation and adaptation measures. O'Neill emphasises their wider importance, noting the creation of more than 140 multilateral environmental agreements since 1920 (half since 1972) that remain 'the

dominant driving force of global environmental governance' (O'Neill 2009, 5). Neo-liberal insitutionalists Robert Keohane and David Victor have extended this discussion into climate discourses. While lamenting the UNFCCC as 'unlikely to succeed' they have identified the emergence of a climate change 'regime complex' that serves to increase state and non-state climate governance interactions at international, regional, national and sub-national levels (Figure 9). Primarily, they view the regime complex as a means to break the emissions "gridlock" which has occurred under the auspices of UNFCCC processes (Keohane and Victor 2011). In this manner, the authors suggest a consolidation of the regime complex is necessary to drive emissions reductions in a 'race to the top' (ibid, 19). The focus of neo-liberal institionalists therefore is not on security *per se*, but rather on addressing the underlying causes (i.e., emissions) that enable the emergence of climate threats.[28]
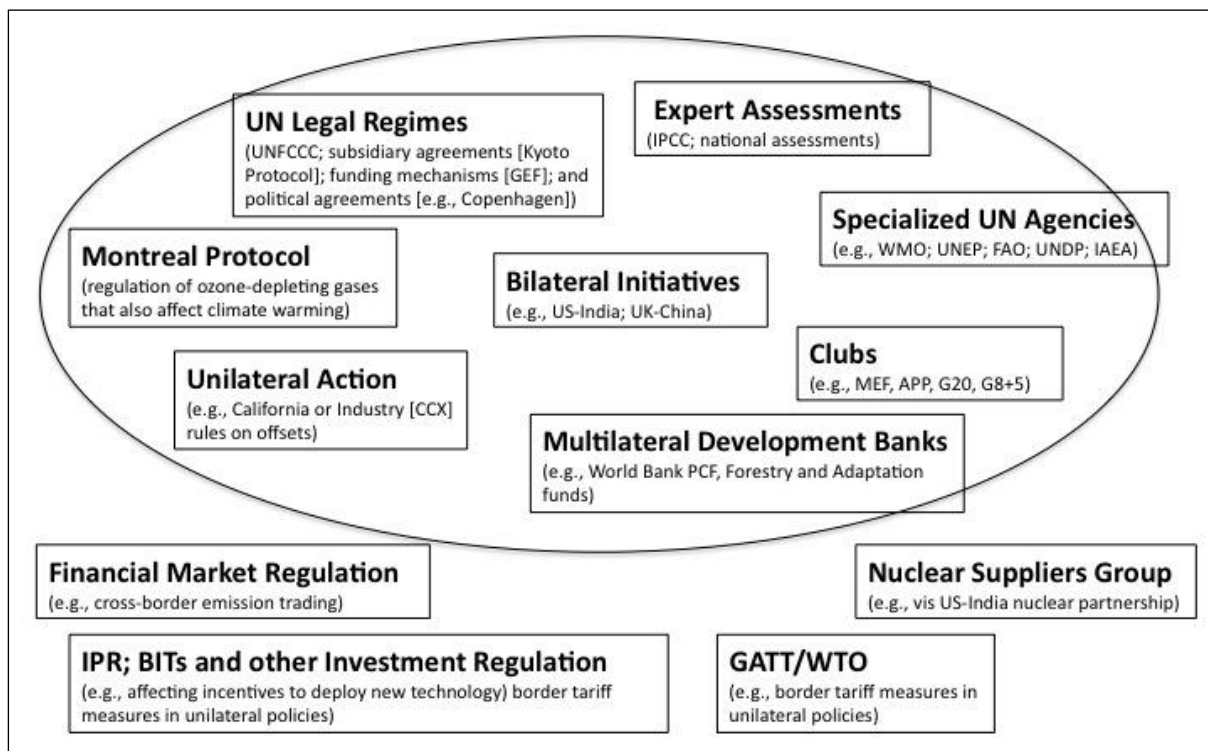
Figure 9. The regime complex for managing climate change. Source: Keohane and Victor (2011).

In addition to this, neo-liberal ideas about the regime complex can have important implications for climate change as a threat to international society. Most prominently has been the way in which security institutions have functioned as a means to engage, diffuse and resolve common climate security threats. Discussion of climate security threats at various

---

[28] It is worth noting the establishment of the Global Military Advisory Council on Climate Change (GMACCC) which could be considered part of this regime complex, though its focus has been on climate security matters. See: http://gmaccc.org/.

international forums (see Chapter four) since at least 2007 show how different states at least conceptualise the issues. In this way, the elevation of climate change as a security issue can be viewed as a means of thickening state and non-state interactions with the opportunity to decrease the possibility of mis-calculation and increase the prospect of cooperating on climate and environmental security issues. International security institutions also provide a ready-made platform from which climate vulnerable nations may express the threats they confront. Undeniably, these articulations have left lasting impressions on even the most wealthy advanced nations as a reason to act on climate change (Obama 2009k, d, e, 2014). In addition, framing climate change in this manner may also galvanise world leaders to act on emissions reductions for the purpose of avoiding the worst security threats presented by climate change (Trombetta 2008, 597 - 598). Thus, rather than 'acknowledging the *dangers*' of securitisation (McDonald 2013, 48; emphasis added), moves to present climate change as a threat to international society via international institutions may be viewed as an *opportunity*.

An important question remains: How does the military sector (normally downplayed by neo-liberal institutionalism) fit into this perspective? This question leads to an important advancement on climate security discourse in which a neo-liberalist approach that identifies opportunities of climate securitisation (or its framing as an international security issue at least) need not automatically infer a nefarious view of the *militarisation* of climate change. In this conceptualisation, the military can be rather viewed as an instrument to be used for the purpose of achieving absolute gains for international society by acting as a first-responder to humanitarian disasters following climate related natural disasters (such as flood, fire or drought relief or following extreme weather events). The emphasis here is on military-to-military cooperation rather than confrontation. This position broadly corresponds with European leaders who have made repeated representations to *securitise* climate change but have always caveated their position by de-emphasising the military's confrontational nature and rather highlighted its ability for capacity building and post-disaster relief (see Chapter four for more extensive discussion). In the words of the UK MoD, the military might be viewed as a 'force for good'(UK MoD 2010b).

Climate change as a threat to the Nation-State from the perspective of Neo-realism

Possibly the most powerful climate security discourse is the presentation of climate change as a threat to the security of nation-states. In this view, climate change has been

framed as a physical, economic and energy security threat that can undermine a state's capacity and even challenge its sovereignty. In some instances, climate change has been framed in this discourse as threatening the very existence of nation-states by literally eroding the very land upon which it exists. The discourse is dominated by preservation of the status-quo with national security considerations of foremost concern (McDonald 2013). The focus on national security (and the involvement of national security institutions) within this discourse presents the opportunity to examine it through the prism of neo-realism. Once again, a sketch of neo-realism's main tenets is provided before very briefly evaluating its contribution to our understanding of climate securitisation and how this relates to the military sector.

Neo-realism evolved out of classical realism that was the dominant IR paradigm during the Cold War. Contrary to liberal beliefs in the 'essential goodness and infinite malleability of human nature' (Morgenthau and Thompson 1985, 3) classical realists such as E.H. Carr believe that 'the role of power is greater and that of morality less' (Carr 1946, 168) and emphasise the practical over the abstract, and of power and self-interest over ideals and norms (Keohane 1986, 7). Waltz (1979) noted the importance of realism to 'explain and predict continuity within the system' while delivering a perspective on world affairs that tells it 'as it is, not as we would like it to be' (Guzzini 2004, 535). Neo-realist scholars such as Kenneth Waltz, Stephen Walt, Joseph Grieco and John Mearsheimer, relate a number of core assumptions that guide neo-realism. First, the international system is anarchical and states are the main actors. Secondly, states are self-interested actors that favour self-help over cooperation. Thirdly, states are rational actors selecting strategies that maximise benefits but minimise losses, relative gains are more important than absolute gains. Fourthly, distrust and fear of other states produces a 'security dilemma' which ensures the survival of the state is paramount over all other considerations (Lamy 2005, 210). Neo-realists also view a bipolar international system as preferred over a multipolar one that tends to create less incentive for states to work together on solving common problems (Daddow 2009, 95).

Expanding on approaches to security, neo-realists emphasise the importance of ensuring survival by strengthening national security measures. Concepts of national security are central to realist approaches with Kennan (in 1948) defining it as 'the continued ability of the country to pursue the development of its internal life without serious interference, or threat of interference, from foreign powers' (Kennan in Ikenberry and Slaughter 2006, 14). For neo-

realists, the state is always the referent object and there are two aspects to strengthening it. First, (internally) by increasing military capabilities or second (externally) by creating alliances to ensure a balance of power in the international system.[29]

Applied to climate change, neo-realism offers a contrasting outlook on neo-liberal institionalist views of the climate regime complex. Rathern than venerating the international institutions as having achieved success, neo-realism casts insight on their *failure* to deliver meainginful emission reductions. Central to this is a belief that questions the role of international institutions (Stein 2009). In his article, *The False Promise of International Institutions*, John Mearsheimer argued that institutions are a reflection of world power, based as they are, on the self-interest of calculation by great powers. For Mearsheimer, institutions have 'minimal influence on state behavior' and that realists maintain they exist 'at the margins' (Mearsheimer 1995, 7). Evidence of this in international climate change negotiations can be found in the fact that despite the effort and rhetoric of the UN and other institutions, global emissions have more than doubled since the establishment of the UNFCCC in 1992.

Echoing Mearsheimer's argument, Michael Glennon likened the highest of international institutions (such as the UNSC) as being 'incapable of performing under periods of great stress' (Glennon 2003, 18). For Glennon and other realists 'the first and last geopolitical truth is that states pursue security by pursuing power. Legalist institutions that manage that pursuit maladroitly are ultimately swept away' (Glennon 2003, 25). Although Glennon was not explicitly referring to the UNFCCC, the comparison is a powerful one. Particularly when accounting for the failure of the Kyoto Protocol whereupon most countries have failed to deliver on agreed emission reductions and where its lack of authority (and a belief that it limits economic sovereignty) has led some countries withdrawing altogether. Further, neo-realist approaches pinpoint the issue when they stress the importance that states place on self-help, self-interest and ideas of relative gains over absolute gains. Moreover, the urge to gain

---

[29] Slight differences emerge between realists and neo-realists on the importance of the military as a tool of statecraft. Classical realists like Carr hold the view that the 'supreme importance of the military instrument lies in the fact that the *ultima ratio* of power in international relations is war' (1946, 109). For neo-realists like Waltz, the totality of a state's power beyond purely military capabilities is more important (Lamy 2005, 209). These differences aside, the contrast between neo-realist outlook and neo-liberal outlook could not be starker when Waltz wrote: 'The state among states, it is often said, conducts its affairs in the brooding shadow of violence. Because some states may at times use force, all states must be prepared to do so – or live at the mercy of their militarily more vigorous neighbors. *Among states, the state of nature is a state of war*' (Waltz 1979, 102; emphasis added).

competitive advantage will always override cooperative measures that purport claims to the greater global good. In addition, today's multipolar world has resulted in a lack of incentive that might otherwise be possible under bipolar or hegemonic conditions (where "sticks" and "carrots" could influence the international community to a binding agreement). Cast in this light, failure at the Copenhagen conference and obfuscation by large emitting nations now appear as rational outcomes, indeed as '*political*' outcomes, by self-interested states eager to maintain their relative power positions (Bodansky 2010, 235; emphasis added).

Regarding climate securitisation discourse, the neo-realist asks: what advantage does securitising climate change offer my country? How can this be used to my country's advantage? How can my country "win" and my competitors "lose"? From a realist perspective, climate securitisation can offer several advantages. First, climate securitisation may be seen as a way to justify "actions" (emergency or not) which under normal conditions would be unviable. Framed this way, nation-states or even militaries themselves might argue that the changing climate justifies emergency (even unilateral) action—expanding military presence across the Arctic, damming rivers to secure water supplies, closing borders to prevent climate refugees or even the annexation of low-lying shoals, rivers, fertile land or other scarce resources threatened by climate change are all real-world examples. Less confrontational may be justification for expanding the military's humanitarian disaster response capabilities to meet increased instances of climate-related threats. For the realist, securitising climate can be viewed as a means to enhancing military power via a discourse that may otherwise act as a foil (i.e., have the appearance of acting in the collective good for international or regional security). For militaries operating within this realist logic, climate securitisation may present an opportunity for new missions and increased budgets (Hartmann 2009, 2010).

Secondly, securitising climate change has been viewed as a means to cajole nations into making faster cuts in emissions. Deployed in this fashion, the realist strategy seeks to maximise *relative* gains without triggering catastrophic environmental damage (in which all parties may lose out). One way to achieve this would be to attempt to lock peer competitors into an unfavourable international emissions agreement while advancing your own national economic prospects. Potentially, by securitising climate change, the US (as the dominant country in climate security discourses that frame it as a threat to national or international security), has sought to "raise the stakes" in such a way as to place insurmountable pressure

on all states to conform to a binding, enforceable emissions agreement. Put another way, climate securitisation is a pretext used by securitising nations, designed to add *strategic gravitas* on the requirement to deliver a lawful agreement—but one that maximises its economic gains at the expense of others. Securitisation deployed for the purpose of economic gain. In this scenario, the West (led by the US) might ratify Kyoto (or its equivalent replacement) at precisely the moment that such emission reductions *favour* their economy and impose a drag on its major peer competitor(s). In this context, realists accept the paradox that (even for the US) it remains in their self-interest to be engaged in UN climate discussions. Such a classic zero–sum strategy was best be summed up by Michael Glennon when he wrote 'the strong may one day become weak and then need the protection of the law' (Glennon 2003, 29).

Criticism of realist approaches involving climate change discourses have been extensive. O'Neill stated that realism's 'focus on "high politics" … and their general skepticism about cooperation [has resulted in realism having] little to contribute to understanding the politics of the global environment' (O'Neill 2009, 11). Mark Lacy has written that realists view threats such as climate change as 'Second-Order problems' since 'there are no viable solutions to them because the are issues that involve forms of global governance' requiring 'collective solutions' that transcend national interest (Lacy 2005, 18). Hans Günter Brauch has suggested that many US security experts have 'so far totally ignored the [*sic*] securitization theory and the contributions of critical security studies' to understanding environmental security concerns (Brauch 2008, 4). For Brauch, '[a]ddressing climate change as an issue of 'national security' within traditional worldview of the analyst or mindset of the policy-maker does not offer a solution' (Brauch 2009a, 988). Brauch also repudiated the military contribution to address new climate threats, arguing that 'armed forces [are] a significant consumer of fossil fuels in peace and even more in war times [and] directly contributes to this threat' (2009a, 988). More broadly, Sprinz and Luterbacher have argued that 'state-centric approaches provide insufficient explanation of Global Climate Change policies' since they fail to account for the 'vertical disaggregation of nation states into domestic actors; 'horizontal' broadening of the actors … as well as equity concerns' (Bodansky et al. 1996, 32). McDonald has criticised the 'perverse implications' of state-centric approaches on the basis that they may present victims as a threat and have the potential to 'encourage an increase in military budgets to respond to potential insecurities in environmental 'hotspots'' (McDonald 2013, 46). Dalby has similarly lamented the national

security discourse, writing 'if the poor are portrayed as a threat to the prosperous … then violence, boundary fences, and conflict are likely' (Dalby 2009, 129).

3.3 Climate Security from Critical (Widening) Security Perspectives

Beginning in the late 1980s, a radical upheaval of the international system ushered in a requirement for new conceptual approaches. Broadly, four major shifts in the international system were identifiable. First was the collapse of the Soviet Union (and end of the Cold War); second was the advent of globalisation and proliferation of communications technology; third was an increased political awareness of the impact of global environmental change; and fourth was the (re)emergence of a multipolar world and historical shift in global power from West to East.

On the back-slopes of these cleavages, scholars began to question the utility of traditional IR approaches. Realism, in particular, was criticised for failing to anticipate major discontinuities within the international system (Dunne and Schmidt 2005). John Vasquez succinctly captured this, writing that the 'great virtue of realism is that it can explain almost any foreign policy event. Its great defect is that it tends to do this after the fact, rather than before' (Vasquez 1999, 324). Also, the (re)emergence of multi-polarity as well as the ascendance of Asian powers led many to question the Western-centric nature of IR. As one Indian scholar lamented, although 'most of these theoretical formulations "explain" the empirical reality of the West … their applicability to the study of security in the developing world remains questionable' (Chatterjee 2003, 125). In the 1980s, many Western scholars also attacked IR for its narrow focus on military-security issues. Many argued for a range of "new" security threats to be included in national security debates. Others called for a rethink on *what* needed to be secured and identified referent objects other than the state. In essence, these debates confirmed the essentially contested nature of security and Arnold Wolfers' outlook that it 'may not have any precise meaning at all' (1952, 481).

Notwithstanding, the progression of such debates led to new approaches that sought to challenge the notion of an immutable existing world order understood through the prism of traditional IR approaches. Thus, the evolution of critical approaches led to a *widening* and *deepening* of the security studies agenda (Buzan and Hansen 2009). Stated broadly, widening refers to a move away from a focus on military-security issues and towards other sectors

including economic, societal, environmental and political. Deepening of the security agenda refers to a move away from the state as the key referent object to be secured (Buzan, Wæver, and de-Wilde 1998). Thus, whereas realism once proclaimed the state as the exclusive referent object to be secured, critical approaches located a variety of referent objects in the international realm as well as at state and sub-state level. In *Security and Emancipation*, Ken Booth united these concepts, writing 'individual humans are the ultimate referent' and that legitimate security threats should also include 'economic collapse, political oppression, scarcity, overpopulation, ethnic rivalry, the destruction of nature, terrorism, crime and disease' (1991, 318 & 319).

As such, critical approaches have advanced our understanding of security concepts. This final section therefore introduces three critical approaches that feature in climate security discourse. The first two have become well established in security literature, Environmental Security and Human Security concepts, while the third is an emerging transdisciplinary security concept known as *political geoecology*. This latter critical perspective is particularly useful as it seeks to unify many of the preceding themes (including scientific discourse) into a new security outlook for the Anthropocene.[30]

Climate Change as an Environmental Security Threat

Climate change has been framed as a threat to the environment and is marked by unprecedented changes to the chemical composition of the atmosphere, ocean acidification, changing rainfall and desertification patterns as well as alterations to landforms, the cryosphere, water flows, nutrient cycles and flora and fauna across the planet (O'Lear and Dalby 2016, 4). The emergence of climate change as a threat to the environment is just one of a panoply of environmental security threats which otherwise include the destruction of ecosystems and habitats, transboundary pollution problems, population growth and consumption, resource depletion and scarcity, economic problems arising from unsustainable production modes and civil-strife and war due to environmental degradation (Buzan, Wæver, and de-Wilde 1998, Barnett 2009, Dalby, Brauch, and Oswald Spring 2009). Buzan, Wæver, and de-Wilde (1998) noted that some actors have attempted to securitise the environment, presumably with the aim of having the respective issues urgently addressed. This section

---

[30]   Copenhagen and Paris Schools are both critical approaches but are not included in this chapter. They are dealt with in the Introduction and revisited in thesis discussion at Chapter eight and nine.

traces the roots of environmental security, briefly examines scholarly literature regarding concepts and definitions. It ends with an account of how the discourse relates to, and may influence, the military sector.

Environmental security emerged in the 1960s from concerns that over-exploitation of the environment could lead to (at best) a degraded quality of life or (at worst) violent conflict of local, regional and international proportions. In its early form, environmental degradation was portrayed as a direct threat to national security and was argued for inclusion in national security agendas (Mathews 1989, Myers 1994). Empirical research of environmental security was subsequently undertaken in the 1990s by Thomas Homer-Dixon (1991, 1994, 1998) (Toronto Group) and Günther Baechler and Kurt Spillman (Environmental and Conflicts Project (EN-COP)). These projects examined how resource scarcity and environmental degradation can lead to acute conflict or the exacerbation of existing socio-economic tensions. Both largely concluded that environmental conflict could arise from an overuse or scarcity of renewable resources, an overstrain of the environment's sink capacity (i.e., from pollution) or from degraded living spaces (Brauch 2009c, 74). Despite this, both studies concluded that environmentally caused conflicts escalate into violence 'only under certain conditions' which are 'due in part to socio-economic and political development' (Baechler 1998, 24). Put simply, environmental conflicts arise from a 'syndrome of problems' (Baechler 1998, 24).

The Copenhagen School has contributed to understanding on concepts of environmental security. In *Security: A New Framework for Analysis*, the authors identified the 'environment' as a distinct sector and identified two referent objects: the environment itself and the nexus of civilisation and the environment (Buzan, Wæver, and de-Wilde 1998). The authors identified three broad threats in this sector as being: (1) threats to human civilisation from the natural environment (e.g., earthquakes); (2) existential planetary threats from human activity (e.g., climate change); and (3) non-existential threats from human activity (e.g., depletion of various mineral resources) (Buzan, Wæver, and de-Wilde 1998, 79 & 80). Of direct relevance for this thesis, Buzan et al. (1998, 77) noted that a 'high degree of controversy surrounds environmental issues' and that (ironically) similar to the military sector, the environmental sector remains vulnerable to securitising moves and countermoves. They surmised that for lead actors—such as World Wildlife Fund, Greenpeace and others— '[s]ecuritizing the environment is their trade' (1998: 77). Wary of such moves, a scholarly

backlash ensued on the inclusion of environmental issues in national security frameworks (Brauch 2011b). Daniel Deudney (1990), for instance, argued against linking environmental degradation and national security while Marc Levy stated it had 'no basis' and remained 'low politics [rather] than high politics' (1995, 36).

Despite this, the prominence and pervasiveness of climate change has injected renewed focus on environmental security matters. The scholar Judith Nora Hardt (2012), for instance, stated that 2007 represented a turning point in environmental security on account of global prominence given to the release of the IPCC AR4 and debates in the UNSC and UN General Assembly on environmental issues. Hardt collectively labelled the various environmental threats under Global Environmental Change (GEC) and identified the most pressing issues as: environment degradation, deforestation, desertification, biodiversity loss, climate change, soil degradation, overfishing, land-use change, excessive/poor practice agriculture and natural disasters (Hardt 2012). Hardt also distinguished three strands of environmental security research that included state-centered, human-centered and eco-centered approaches. She noted several competing definitions of environmental security, but that they coalesce around ideas of repairing damage to the environment in order to sustain human life, maintenance of the intrinsic value of the environment and the prevention of damage, attacks or other forms of human abuse (Hardt 2012). Similarly, the political-geographer scholar Jon Barnett defined environmental security as 'the ability of individuals and groups to avoid or adapt to environmental change without critical adverse effects' (Barnett 2009, 939).

Significant analytical implications flow from such eco-centered assessments, particularly concerning the *rate-of-adaptation* against the *rate-of-climate change*. Hardt touched on this when she surmised the 'frightening' speed with which GEC has occurred, emphasising that 'humankind is moving the earth beyond natural and prevailing ecological processes' into a new 'human made geological era: the Anthropocene' (Hardt 2012, 207). Likewise, Brauch and Oswald Spring have called for environmental security to move away from issues of scarcity and towards much more complex causes of GEC in which the threats in the Anthropocene are recognised as being 'fundamentally different' from previous eras since they are no longer posed by 'them' (e.g., an 'axis of evil') but by 'us' (Brauch and Oswald

Spring 2011, 33 & 40). These aspects underscore the strategic nature of climate change and challenge traditional conceptualisations of security.[31]

At a fundamental level, these views also point toward a requirement for nations to reconsider how their militaries might be employed. Such calls, however, are not new. The 1993 UN report *Potential Uses of Military–Related Resources for Protection of the Environment* was a landmark for arguing in favour of converting military resources for environmental protection (UN 1993). Jürgen Scheffran (1992) made similar calls. More recently, and in the context of climate change, some developing nations have even argued for developed nations to cut (up to) 20 percent of military expenditure in order to fund global climate change adaptation and mitigation projects (UNSC 2011a).

Similarly, calls have been made for the military sector to reduce its emissions footprint. In 2008 the US Environmental Protection Agency (EPA) led a conference *Military Leadership in Reducing Dependence on Fossil Fuels* drawing over 100 military and environmental authorities from twenty-five countries. The conference described fuel as 'an operational burden' and argued for more incentives for energy efficiency and use of renewables at military installations (EPA 2008). It also highlighted that global military forces are not necessarily exempt from UNFCCC protocols on emissions reductions. Others have argued that military operations (such as oil supply-line security) are major industrial activities that should be subject to national legislation to drive investment in renewables (Liska and Perriny 2010). This last point (the military-industrial sector as a driver of innovation and investment) has historical merit, as evinced by the raft of technological spin-offs as a result of US military-industrial expansion post-World War Two.

Matthew and McDonald (2009) adopted a more pragmatic approach regarding the military and environmental security. Although they conceded that the military was a 'historically single-minded and independent entity' that has been 'reckless and cavalier' regarding its environmental record, it remains a 'highly trained, well-organised, and well-funded social institution … [that is] … not likely to be dismantled in the near future' (Matthew and McDonald 2009, 796). In this manner, the inclusion of the military in environmental security

---

[31]   Aspects of viewing the Anthropocene as a new security era were detected in the Australian case study, see presentations such as 'Wake Up and Smell the Anthropocene' at the Global Change and Energy Sustainability series within the VCDF group (accessed at
http://www.defence.gov.au/VCDF/JCC/DPREP/Presentations.asp, accessed on 10 May 2015).

debates has been seen as positive since it has modernised the military's approach to environmental matters and highlighted the strategic importance of the issues involved.[32] The 1993 UN report also makes the point that the vast resources of the military could be used for assisting environmental assessment and monitoring roles and in developing "green" technologies. Others (Wiharta et al. 2008, Press, Bergin, and Garnsey 2013) also highlighted the obvious role that the military has had in the aftermath of a natural disaster(s). O'Lear, Briggs, and Denning (2013) synthesise many of these points and also cite the military's role during peace operations that involve working with local authorities on environmental aspects such as water management, sanitation, engineering works that aid agricultural and other infrastructure as well as the prevention of invasive species. Lastly, the rate at which climate change is occurring challenges the military to consider how their own forces are structured to meet new threats of the Anthropocene.

Such "normalisation" should be seen as relevant in current climate security discourse. But they should also serve as a caution to look beyond the rhetoric. Arguably, the military has paid little attention to concepts of environmental security, particularly those ideas which view it as some kind of environment repair agency. More likely, the military has never accepted the "environment" as a referent object which environmental security scholars do. It has certainly not been a feature of the key national security planning documents in Australia or the US. Rather, the military operates within "it" (the environment), but never in protection of "it", unless to maintain its vast estate of bases and ranges which underpin its training activities or if it serves its immediate operational interests. Consider, for instance, the juxtaposition between the volumes of ADF environmental regulation for its own training grounds (within Australia) versus the absence of environmental consideration when conducting operations in recent theatres of war. Moreover, environmentalism within the military has had limits: it has served one interest, and it has not been the environment. And yet, the omnipresence of climate change represents an environmental security issue that the military can no longer ignore.

Climate Change as a Human Security Threat

---

[32]   Examples might include the ADFs *Defence Environment Strategic Plan* (2010 – 2014) and the US DoD *Strategic Sustainability Performance Plan*.

Climate change has been presented as a threat to human security. In this discourse, humans are the main referent object with a focus on the well-being of people rather than states. McDonald (2013) argues it rests on the two central claims that the state is unreliable in providing security to its citizens and that a focus on what is important to the state (legitimacy, sovereignty, territory) has lost relevancy in the contemporary security environment. This section briefly sketches the main concepts of human security within climate security discourse its relevance as a discourse to the military sector.

Concepts of human security paralleled the emergence of environmental security as a new "deeper" referent object, challenging traditional perspectives of national and international security at the end of the Cold War. Brauch—echoing other critical perspectives—highlighted that human security remained a 'contested concept' but that it represented a fundamental shift in focus from state-centered perspectives obsessed over issues of sovereignty to human-centered perspectives about human well-being and survival (Brauch 2009a, 965 & 966). Nicholas Thomas and William Tow have argued that human security concepts were 'seized upon' by the UN and some middle powers throughout the 1990s that culminated in the 'acceleration of UN involvement in humanitarian interventions' as well as that organisations humanitarian infrastructure (Thomas and Tow 2002, 180). Roland Paris noted that while it has acted as a 'rallying cry' its value as a useful tool of analysis has been hobbled by lack of precise definition, writing 'it is so vague that it verges on meaninglessness' (Paris 2001, 102).

Nonetheless, other scholars have argued that human security is a powerful framework since it transcends traditional conceptualisation that reveals 'frictions' between the security of individuals and communities and the security of ecosystems and species. Barnett et al. emphasised its contemporary importance since 'global environmental change poses new and in cases unprecedented threats to human security' (Barnett, Matthew, and O'Brien 2010, 4). Hardt (2012) identified four pillars that have emerged since the human security concept was first introduced by UNDP *Human Development Report* (1994) and further developed by its 2003 report *Human Security Now*, including: freedom from fear and want, freedom to live in dignity freedom from hazard impacts (Hardt 2012, 213). Hardt cited the Global Environmental Change and Human Security Project (GECHS) and UN University's Institute of Environment and Human Security (UNU-EHS) as leading the environmental and climate connection of human security.

Jennifer Leaning identified the major threats to human security as: (1) underlying dynamics of globalisation that might intensify social vulnerability and accelerate unwanted trends (e.g., exposure to new diseases); (2) demographic change that places strain on natural resources; (3) climate change driving transformations of social habitat; (4) growing disparities between rich and poor; and (5) forced and distressful migration (Leaning 2009, 541). IPCC AR5 examined these in relation to climate change and concluded that 'human security will be progressively threatened as the climate changes' and that '[c]limate change will lead to new challenges to states and will increasingly shape both conditions of security and national security policies' (Adger et al. 2014, 758).

Brauch has argued that dealing with these issues will require new thinking. Although he saw no role for the military in dealing with climate change *per se*, he considered its role in human security only if 'the role and missions of the military changes from fighting wars to *protecting* people against genocide, natural hazards where the society and social movements have to play a vital role in empowering the people to build resilience and to enhance their coping capacities' (Brauch 2009a, 966). Thus, Brauch advocated for military involvement on a strictly conditional, perhaps idealistic, basis. Nonetheless, despite persistent calls (Wing 2000, Altman et al. 2012, Christoff and Eckersley 2014) and with the possible exception of some nations (notably Canada, Norway and Japan) concepts of human security have arguably remained a low priority in formal strategic level national security discourse. A review, for instance, of the 23 major US national security planning documents since 1991 yielded no single reference to the concept of human security (Brauch 2011b, 273).

Despite the relative absence in national strategic documents, since at least the mid-1990s military professionals have argued, and military doctrine has inclined, toward a more human-oriented approach as encapsulated by concepts of 'stability operations' and operations 'amongst the people' (Smith 2008). The 2008 US Army *Stability Operations* manual, by way of example, that identified climate change as a source of instability, also emphasised the importance of related human security concepts. This manual described that successful stability operations require 'a safe and secure environment, established rule of law and social well-being' (US ARMY 2008, vi). It also linked concepts of national security to human security by arguing that the overall strategy must 'promote freedom, justice and human dignity' and where the military might assist in establishing the rule of law (where *individuals*

are secure) and capacity building measures (where *individuals* are equipped with understanding, skills and access) in war torn regions or fragile states (US ARMY 2008, 11). Despite this, the literature review conducted for this thesis failed to find any substantial evidence that the US and Australian military has linked human security concepts (as defined by the scholarly community) with that of the threat of climate change.[33] At best, it has only been done in the very broadest terms and mainly in higher level strategic documents ((Defence 2009b, Commonwealth of Australia 2013b, White House 2010, US DoD 2010, White House 2015).

A New Security Approach for the Anthropocene: Political Geoecology

This section briefly explores an emerging transdisciplinary approach known as *political geoecology* or what Dalby and O'Lear (2016) have recently called *ecological geopolitics*. The basis for this 'meta-frame' is that earth has entered a new geological epoch (the Anthropocene), wrought by human activity 'moving the Earth beyond natural and prevailing ecological processes' (Hardt 2012, 208). This frame argues that transformative concepts are required to address the scale and urgency of climate change and builds on earlier works by green political theorists (Eckersley 1992, Low and Gleeson 1998). It eschews traditional concepts of state-centric approaches, relegates the military as irrelevant in resolving the issues, and asks 'us to think of ecology as part of geopolitics, and of geopolitical practices as active components that shape the new geological epoch we are creating – the Anthropocene' (Dalby and O'Lear 2016, 203).

Earth system scientists have called for greater focus on developing a universally accepted strategy to 'ensure the sustainability of Earth's life support system against human-induced stresses' (Steffen, Crutzen, and McNeill 2007, 618). Since the late 1980s, four major research projects have worked towards this: International Geosphere-Biosphere Programme (IGBP); Human Dimensions Programme on Global Environmental Change (IHDP); the World Climate Research Programme (WCRP) and DIVERSITAS (now "Future Earth"). These four programs formed Earth System Science Partnership (ESSP) (sponsored by the International Council for Science (ICSU)) that examine (1) the integrated study of the Earth System; (2) the changes that are occurring to the system; and (3) the implications of these

---

[33]   An exception to this was the US Navy's *A Cooperative Strategy for the 21st Century Seapower*, discussed at Chapter seven.

changes for global sustainability (Leemans et al. 2009). ESSP (2009) argues that the totality of human actions are no longer sustainable and that decision makers require urgent information on how the Earth's social, ecological and physical systems are linked; how they are changing; and what sustainable measures can be adopted. Furthermore, humans, as the prime driver of change on the planet, are now pressuring planet carrying capacity of food, water and energy to the point that certain systems are nearing critical thresholds. If crossed, these tipping points could 'cause large scale economic and ecological disruptions and unprecedented humanitarian challenges' (IGBP 2010).

Within the scholarly community, Global Environmental and Human Security Handbook for the Anthropocene (GEHSHA) has addressed conceptual linkages between security, peace, development and the environment.[34] GEHSHA proposed the idea of 'political geoecology' to reconcile what it saw as major disconnects between the social sciences (of IR, ISS, geopolitics, geo-strategy and geo-economics) that they argue ignore issues of global environmental change; and between research in the natural sciences that largely ignore the political dimension of transforming 'knowledge into proactive policy' (Brauch, Dalby, and Oswald Spring 2011, 1471). Brauch et al. argued that 'since the start of the discourse on global environmental change … there [has been] little interchange between natural scientists in the global change research community and the social scientists and policymakers and advisers who dominated the debate on reconceptualizations of security' (2009b, 25). In this situation 'both discourses … were pursued in parallel by different scientific and policy communities with a limited exchange between' scientists, policymakers, security experts, officials, diplomats and military officers (Brauch 2009b, 25). UN Secretary-General Ban Ki-moon acknowledged how this can occur when 'policy makers often fail to turn to scientists for advice, or discount it too easily owing to electoral or other political considerations. At the same time, scientific advice is sometimes unclear or even contradictory. Scientists themselves often work in silos, ignoring broader factors' (Ki-Moon 2012).

Political geoecologists thus seek to reconcile the political dimension (ensuring transformation of knowledge into policy), the spatial context (particularly with respect to globalisation) and science (where the ecosphere intersects with the "Anthroposphere"). Political geoecologists

---

[34]   Periodically published over the course of a decade and spanning three volumes, GEHSHA provides global scholarship from more than 300 multidisciplinary experts from 100 countries providing some 270 peer reviewed book chapters that addresses conceptual linkages between security, peace, development and the environment.

argue that "old" IR approaches have downplayed the environmental dimension in security matters, missing a fundamental and underlying paradigm shift—that the transition from the Holocene to the Anthropocene is leading to new security threats for which humanity is grossly unprepared. Brauch et al. (2011, 1448 - 1469) identified five instances to understanding the new security context. These included the point that humans are indistinguishable from nature, that humans are now a major forcing mechanism of the biosphere, that the earth-system is interconnected and has "tipping points" which may trigger abrupt and unpredictable change and, lastly, that humans have already caused major changes to key ecological processes that have no known parallel in human history.

To deal with these aspects, political geoecologists identified two polarising approaches: a *Business-As-Usual* approach (characterised by Hobbesian worldview and self-interest) and a *transformative* approach (characterised by sustainable development and transformation of productive and consumptive processes). Each approach has two different coping mechanisms to deal with global environmental change. From Brauch et al. (2011, 1487 - 1488):

(1)   Business-As-Usual approach has a "Cornucopian" outlook aligned to technology fixes, defence of economic, strategic and national interests with adaptive strategies; and

(2)   Transformative approach has a "neo-Malthusian" view that stresses earth's limited carrying capacity and, to avoid catastrophic risk, requires a sustainable vision within society, the business community and the political realm.

Brauch coupled these two perspectives (including a centrist-pragmatic approach) with three traditional worldviews on security which reveal nine different positions on security and environmental (climate change) issues. Three ideal types are emphasised here:

(1)   Neo-realist and neo-Malthusian pessimist for whom only military, economic and political power matters. Often pursued by major military powers and reflected in many studies that analysed climate change as a "threat" to security.

(2) Neo-liberal institutionalist and equity-oriented pragmatist for whom multilateral cooperation (e.g., UN, EU) can solve challenges. Advocated by smaller countries and middle powers and by the UN.

(3) Kantian ideals and Cornucopian optimism that democracies, rule of law and faith in technological advancements can solve global environmental challenges.

Based on this, Brauch et al. (2009) argued that perceptions, interpretations and responses to global environmental change depend on the specific combination of the prevailing worldviews. GEHSHA advocated a (qualified) centrist approach which requires 'human ingenuity (knowledge on understanding the causes but also technical knowledge) … and peaceful multilateral cooperation' (Oswald Spring and Brauch 2011, 1498).

In relation to climate-security discourse, GEHSHA diverge significantly from traditional approaches by arguing for a reconceptualisation of what constitutes 'a threat' and where the source of the threat exists:

> [N]ew security threats posed by [Global Environmental Change] are fundamentally different [from those identified by traditional IR approaches]. These threats are not posed by 'them', the other societal system, the competing military alliance or political and economic bloc, nor is it posed by an 'axis of evil' and by 'rogue states', but by us, by our lifestyle, especially by the adored and imitated 'American way of life' of consumerism—that has since World War II been pursued as a goal by the middle and upper classes around the globe— without taking the environmental externalities into account. If 'we' are the threat causing the multiple global environmental changes, then the military strategies, policies and means based on the mindsets of the Cold War have become totally obsolete for coping with this new threat in the Anthropocene (2011, 33).

To overcome this, political geo-ecologists call for a 'Fourth Green Revolution' (after agricultural, industrial and communication revolutions) based on a 'radical change in culture, worldview, mindset and participative governance in the thinking and action on sustainability

laying out an alternative development path with a total transformation of productive and consumptive processes' (Oswald Spring and Brauch 2011, 1488-1489).[35] This approach incorporates works from the natural sciences that posit such strategies must be 'more integrated, more long-term in outlook, more attuned to the natural dynamics of the Earth System and more visionary'. It also incorporates work by economists (Stern 2006; Garnaut 2009) who argue that the 'cost' of nature (or 'natural capital') can no longer be excluded from the cost of production and consumption.[36] Moreover, security policy in the Anthropocene that deals with new security challenges must be 'science and knowledge based and different knowledge from what national intelligence agencies and military establishments have offered policy-makers … a new policy framework … that combines the goals of 'sustainable development' with a 'sustainable peace' to cope with the 'survival dilemma' of humankind' (Brauch 2009c, 69).

Political geoecologists argue that militaries lack utility when it comes to dealing with the threat posed by the survival dilemma. Brauch and Oswald Spring (2011, 1495) noted that 'moving towards a vision of a sustainable peace … requires overcoming the Hobbesian obsession of a militarisation of the climate change impacts for national security'. However, this appears unlikely since:

> The prevailing Hobbesian mindset of the political and military elites
> applies power concepts, strategic rationales, and military instruments
> (armed forces, weapons, intelligence) for dealing with a new and
> fundamentally different security danger that is not any longer 'them'
> (China, India, Russia, Brazil, South Africa, the developing countries,
> and the new rapidly rising GHG emitters) that poses the threat but 'us'
> due to our fuel-intensive mode of production and consumption
> patterns where the externality of the costs have been ignored.

---

[35]   *Culture* refers to thinking on the human-nature interface; *worldviews* refers to thinking on the systems of rule (e.g., democracy, autocracy, interstate relations); *mindsets* refers to thinking on strategic perspectives of policy-makers and new forms of global *governance* (see Brauch and Oswald Spring, 2011, 1488).

[36]   Two examples of this are: (1) the UN Millennium Ecosystem Assessment (2005) which was an early effort to baseline the state of the world's ecosystems and; (2) the *UK National Ecosystem Assessment* (2011) which, for the first time, measured the benefits that the UK's natural environment provided to its societal and economic basis. This has led to initial development of a new metric for national wealth based on a combination of the standard measures of Gross Domestic Product (GDP) *and* measures of the health of the UKs natural capital, see Petherick (2012, 707). Such measures are indicative of a gradual awareness by states of the type of transformation called for by political geo-ecologists.

The rapidly progressing 'militarization' of climate change in the context of the national security discourses that are often instrumentalized for adjusting the national security apparatus to new tasks by creating new military missions and larger budgets—an approach that totally obfuscates the fact that *this security threat cannot be solved with military means* but requires a fundamental transformation of the economic system and of human values and aspirations, as well as an adaptation of political processes (Brauch and Oswald Spring 2011, 1492-1493; emphasis added).

These observations challenge existing traditional IR perspectives, particularly realism which places primacy on the military as the ultimate instrument upholding security. But they also raise some unanswered questions. If climate change is a 'new threat', and militaries 'are often instrumentalized for … new tasks' then what evidence of this exists? Going further, how do these claims hold-up where the governing political party may *not* consider climate change a threat, but the military *does*? (Or vice-versa). Might this reveal differences between military and political approaches to addressing climate change and if so, what consequences could this have? Might the securitisation of climate change and military involvement actually produce change in the political sphere such that it prompts promotes effective political action? Such questions are central to this thesis and form important considerations to be addressed during the case studies.

3.4   Chapter Conclusion

This chapter has critically examined the (in)adequacy of conventional approaches and has surveyed alternatives that might be better equipped to address the international political and security challenges posed by climate change. What lessons may be drawn for this thesis? First, the foregoing analysis confirms the notion that concepts of security remain 'essentially contested'. Traditional IR approaches continue to focus on the state as a key referent object whereas critical approaches place emphasis elsewhere (e.g., the environment or humans). In some respects, this thesis uniquely examines a traditional institution (military) in the context of a relatively unconventional threat (climate change).

Secondly, while traditional IR approaches continue to place emphasis on the role of the military, it is less clear (from literature examined) what this will be—if any—in relation to

climate security threats. Critical IR approaches have also argued that traditional approaches, particularly US dominated realism, lack relevance in the new geological era of the Anthropocene. Nonetheless, this thesis adopts the position that traditional approaches remain relevant for their ability to explain international behaviour on climate change—including areas of agreement and areas of disagreement. Furthermore, although realism has generally lacked prominence in climate change discourses, it may be anticipated that the military response will align strongly with many aspects of realism. This is to say, the military will prioritise security threats to the state and then accord primacy to dealing with those. Because the military deals in threat-horizons from the present day to ten or fifteen years away, climate change is *unlikely* to be a factor in its near-term planning *unless* it can demonstrably provide the state (or the military) a competitive advantage over its potential adversaries. For example, transitioning military infrastructure from traditional grid-supplied energy (and susceptibility to cyber-warfare) to off-grid dedicated renewable energy systems may be one example of how the military can use the "threat" of climate change to enhance its own (energy) security (and therefore that of the nation). Such concepts are important markers for the thesis and will be a factor throughout the case study analysis and discussion.

Thirdly, critical approaches have called for more transformational concepts in light of what is understood to be emerging acceptance of environmental catastrophism. Concepts, such as political geoecology, place even less emphasis on the military and rather call for radical transformation of societal systems to meet emerging and potentially irreversible environmental change. In these approaches, the referent object shifts from the state or humans and toward nature itself. These approaches are specifically critical of the militarisation of climate change and warn against climate change being portrayed as a threat to be met through increased military involvement. These are important concepts that will be explored during the case studies since there has been little systemic examination of how militaries have responded to climate change.

Perhaps above all else, a review of the various theoretical outlooks has revealed that the complexity of climate change—its political and scientific nature, its ubiquitous risk to societal and environmental systems as well as its strategic and decades-long dimension that are dependent on modeled emission-rates—has arguably stranded the military. Seemingly, on both sides of the theoretical divide, the military sector has a limited role to play. To examine this further, however, it is necessary to move beyond theoretical frameworks and into a closer scrutiny of applied policy and scholarly literature on climate securitisation itself.

Chapter 4: Climate Security Discourses in Policy

4.1 Introduction

Whereas Chapter three examined climate security discourses from scholarly perspectives, this chapter focuses on policy-oriented literature regarding the securitisation of climate change. Policy-oriented literature in this chapter focuses mostly on the remarks and publications generated by politicians, policy makers, military professionals and think-tanks (although some scholarly literature is used where appropriate). This was considered important since it follows the progression of this thesis from a broad understanding of climate science, to theoretical perspectives on climate security discourses to the narrow domain of climate security in actual practice. The chapter begins by examining the emergence of climate change as a security issue from the 1960s (section 4.2). Applying the approach of securitisation analysis, attention then turns to reviewing policy-oriented literature and speech-acts that were influential in establishing climate change as a security issue between 2007 and 2013 (section 4.3). Most of the literature reviewed comes from developed countries (particularly Western nations) since these countries have mostly led international efforts to securitise climate change.[37] Of specific importance for this thesis, this section highlights the gradual appearance of climate change threats in formal national security documents of Australia's key allies, the US and the UK. While only abbreviated attention is paid in this section to these documents (on the basis that detailed examination occurs in the case studies) their importance cannot be understated. In many respects, the incorporation of climate change in mainstream national security discourse represented a crucial pre-condition for military involvement.

Section 4.4 examines the emerging schism between states who support efforts to securitise climate change and those that do not. By and large, the developing world has been particularly belligerent in ensuring climate change remains non-securitised and treated primarily as a sustainable development issue. This remains an important point for Australian and US military forces, particularly when engaging with developing nations on issues associated with climate change (e.g., disaster relief). In this context, climate change as a security issue is crucial to the US as it sets about rebalancing ("pivots") to the Asia-Pacific—

---

[37] For a comprehensive account of non-western oriented climate securitisation see Brauch et al. (2012).

a region where in 2014 over half of the world's 226 natural disasters (including climatological) occurred (Barrie et al. 2015, 28).

4.2 A General History of Climate Securitisation

Current debates about climate change as a threat to human, national and international security can be traced from the 1960s. It was during this period that environmentalism, resource anxiety and scientific knowledge began to converge in public, academic and political discourses. Reflecting this gradual shift in public attitude was the establishment of international environmental NGO regimes (World Wildlife Fund, 1961; Greenpeace, 1969), national environmental protection agencies (US EPA and UK DoE, 1970) and the United Nations Environment Programme (UNEP, 1972). The first *Earth Day* took place in 1970. Repeated energy crises (1973 OPEC embargo and 1979 Iranian Revolution) fuelled energy security concerns (predominately in the US) which served to heighten a neo-Malthusian outlook where rapidly expanding population growth (demand) risked outrunning Earth's carrying capacity (supply).[38] The Club of Rome's *Limits to Growth* (1972) was symbolic of this perspective. Concern about the impact of war on the environment also entered the discourse as was proclaimed by the UN World Charter for Nature which (somewhat optimistically) proclaimed: 'Military activities damaging to nature shall be avoided' (UN 1982).

Rapid accumulation of scientific knowledge through advances in data collection capabilities and computer modeling also witnessed the scientific community become active in warning the public about the growing human impact on the environment. Concern about destruction of the ozone layer, for example, saw the adoption of the Montreal Protocol (1989) which banned a range of ozone depleting gases. In regards to the 'CO_2 problem', US scientist James Hansen warned in 1981 that unabated GHG emissions might create 'drought-prone regions in North America and central Asia as part of a shifting climatic zones, erosion of the West Antarctic ice sheet with a consequence worldwide rise in sea level, and opening of the fabled Northwest Passage' (Hansen et al. 1981, 957). During this period a number of government funded research initiatives explored the links between energy security and climate change

---

[38]   Notable contributors included Paul Ehrlich (*The Population Bomb,* 1968), Garret Hardin (*The Tragedy of the Commons*, 1968), Barry Commoner (*The Closing Circle: Nature, Man and Technology*, 1971 and *The Poverty of Power*, 1976) and Donella Meadows et al., (*The Limits to Growth,* 1972).

(Revelle et al. 1977) while some scholars tentatively began examining climatic change as a security issue (Falk 1971).

Continued politicisation saw a series of international conferences and reports on the matter, including World Climate Conferences (1979, 1990 and 2009), the "Villach meetings" of expert scientists (1985 and 1987) and the Brundtland Commission (1987). These culminated with the establishment of the IPCC (1988) and UNFCCC (1992). Political leaders (on both sides of the Cold War divide) voiced concern in international fora, including by Mikhail Gorbachev who stated 'the relationship between man and the environment has become menacing … the threat from the sky is no longer missiles but global warming' (Brauch 2011a, 63 - 64). In 1985, The World Resources Institute (WRI) argued that the impact of 'greenhouse warming could be catastrophic' (UN 1988). At the 1987 *World Conference on the Changing Atmosphere: Implications for Global Security*, Norwegian Prime Minister Brundtland stated 'the impact of world climate change may be greater than any challenge mankind has faced' (Brauch 2009c, 84). The conference also called for a 20 percent reduction in emissions by 2005 and issued a statement saying climate change represented an 'unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war ... [it is] a major threat to international security and [is] already having harmful consequences' (WMO 1988, 292). In the US, early high-level political interest had been expressed from the 1960s and '70s, with the 1978 *National Climate Program Act* (Public Law 95-367, 95th Congress) making the link to security, 'climate change affect[s] food production, energy use, water resources and other factors vital to national security' (National Climate Program Act 1978). Former US Vice President Al Gore came to prominence as a junior senator advocating for environmental causes and was influential in establishing the first US congressional hearings on climate change in 1981 (Corn 2006).[39]

The rise of environmentalism was also matched by increased awareness of "new" security threats which challenged traditional state-centered threats. Threats relating to non-state actors (terrorist and criminal networks), rapid population growth, infectious disease, resource scarcity and environmental degradation were all argued for inclusion in national security

---

[39]   Interestingly, a notable contribution at this hearing included testimony by Roger Revelle, one of the early US scientists examining the impact of increasing emissions (see http://www.scribd.com/doc/259162016/Gore-Hearing-on-global-warming-July-31-1981).

agendas alongside nuclear, military and other hard-power threats. Key contributors during this *first phase* of environmental-security research included Richard Ullman (1983), Lester Brown (1986), Paul Ehrlich and Anne Ehrlich (1988), Jessica Tuchman Mathews (1989), Thomas Homer-Dixon (1991) and Norman Myers (1994). During this time, the role of the military in environmental security came into question. Advocates of a proactive military role pointed to the vast military resource base as a possible means for combating environmental change and recording data for scientific purposes whilst critics emphasised the inconsistency between these missions and concerns that protecting the environment may hinder military readiness and capabilities (Matthew 1995). Others argued against a military role, with peace researchers (e.g., Stockholm International Peace Research Institute (SIPRI), International Peace Research Institute Oslo (PRIO) and UNEP), all pointing to the negative impact that wars (and militaries) have on the environment (also see Westing (2013)). UNEP examined this aspect in relation to the Vietnam War, the 1991 Gulf War, Balkans and Afghanistan (Schubert et al. 2008, 48).

In the post-Cold War era, research also began to focus exclusively on the impact of climate change to social, economic and political relations. In 1989 Peter Gleick argued that 'global climate change will potentially alter agricultural productivity, freshwater availability and quality, access to vital minerals, coastal and island flooding' (1989b, 310) which—with the exception of nuclear war—'no other environmental problem has the scope or the potential for such widespread societal impacts' (1989a, 333). Studies sponsored by UNEP also cast a sharp relief on the impact of global sea-level rise, particularly within low-lying island states. The security dimension of sea-level rise in the Southwest Pacific, for example, was examined by Michael Edwards (1999) who concluded that industrialised countries were waging a form of 'eco-colonialism' and had a moral obligation to reduce their GHG emissions (Edwards 1999, 325).

The 1990s saw other major empirical studies (*second phase* of environmental security studies) undertaken by the Toronto Group (Homer-Dixon 1991, 1994, 1996, 1999) and the Environmental and Conflicts Project (ENCOP) (Klötzli 1994, Bächler et al. 1995, Lang 1995, Libiszewski 1995) that examined the nexus between resource scarcity, population growth, environmental degradation and acute conflict. Comparative case studies (the *third phase*) by a number of other major (European-based) research teams further examined linkages

(Tanzler, Carius, and Oberthur 2002, 48 - 49).[40] The potential spill-over of conflict from human-induced environmental pressure into regional and international violence was highlighted by US and UN failures in Somalia (1992) and Rwanda (1994). Robert Kaplan's *The Coming Anarchy* (1994) captured public and political attention and remains widely cited for popularising the issue and for capturing what Betsy Hartmann critically described as the 'degradation narrative' (Hartmann 2010, 238). For Hartmann, this narrative exploits deep seated (Western) fears and stereotypes of 'dark-skinned, over breeding, dangerous poor' Third World peasants over-running the wealthy, industrialised North (2010, 238).

Maria Trombetta (2012) argued that the Toronto Group played a significant role in determining the future shape of environment conflict studies. She noted three main influences from this period: (1) it shifted the focus of conflict research outside traditional security communities, (2) it contributed to a conceptual split between resource management approaches (economics and risk management on the one hand) and conflict studies (strategic studies and IR on the other), and (3) it marginalised climate change by downplaying connections between localised impacts and global dynamics (Trombetta 2012). With some notable exceptions from the environmental security studies groups, climate change was dismissed as a 'low priority issue' (Trombetta 2012, 154).[41]

By 1999, Geoffrey Dabelko presciently observed that 'the bubble had burst' and the 'policy crowd moved on to other theories … 'the clash of civilizations' now claimed the spotlight' (Dabelko 1999, 14). In 2002, a special report prepared by the German environment ministry lamented that 'despite the significance … conflict prevention and avoidance has not yet been established as a topic in the international process of climate change' (Tanzler, Carius, and Oberthur 2002, 4). September 11, followed by US led wars in Afghanistan (2001) and Iraq (2003) as well as the ascendancy of neo-conservative politics in the US reinforced this tendency (Buzan and Hansen 2009, 229 - 243).

4.3 Select Review of Climate Securitisation in Policy

---

[40] See for example the International Human Dimensions Programme on Global Environmental Change (IHDP), International Geosphere-Biosphere Programme (IGBP), Global Environmental Change and Human Security (GECHS) and German Advisory Council on Global Change (WGBU). Also see Dalby, Brauch, and Oswald Spring (2009) who note a *fourth phase* with a focus on human security (783).

[41] Environmental security studies (particularly major empirical studies by the Toronto Group) were also criticised for their inconclusiveness. See Homer-Dixon and Deligiannis (2009).

Although the so-called Global War on Terrorism dominated international politics in the first half of the 2000s, climate securitisation again became prominent from 2007 as a result of IPCC AR4 and the lead up to the 2009 Copenhagen Conference (Brauch 2009c, Oels 2012, Trombetta 2012).[42] It was during this period that political leaders began to frame climate change as an urgent issue, as an existential threat and as one that required emergency measures. The heightened sense that "something must be done" was also evident in many Government reports, political speech-acts, scholarly literature and discussions on climate change held in high-level policy fora including multiple G8 summits (Gleneagles (2005), Heiligendamm (2007), Tokyo (2008)); G20 summits (2008, 2009); Conference of the Africa Union (2007) as well as the UNGA (2008 and 2011) and UNSC (2007 and 2011).

Public attitude was also influenced by former US vice-president Al Gore and his 2006 movie *An Inconvenient Truth*, and publicity surrounding his sharing of a Nobel Prize for Peace with the IPCC (Nolan 2010). There was also a growing sense that natural disasters were increasing in scale, frequency and intensity. In 2005 Hurricane Katrina hit New Orleans (US) and more than 1,300 people, displaced in excess of 200,000, saw 70,000 soldiers mobilised in relief effort including 22,000 active troops and 50,000 National Guard and caused $80 billion in damages (Davis et al. 2006). Natural disasters—particularly Katrina and then later (2012) the so called Super Storm Sandy—were symptomatic of the mood that climate change was a new type of threat that did not discriminate according to national wealth or status (Busby 2007, 1).[43] Popular literature played its part to reinforce climate change as an existential threat, for example see Gwynne Davis (2008) *Climate Wars*, or Michael Klare (2007) *Global Warming Battlefields: How Climate Change Threatens Security*. Newspaper headlines also framed climate change as an existential threat as instanced by *The Observer* (2004) "Now the Pentagon tells Bush: Climate Change will destroy us" (Townsend and Harris 2004) and in the *New York Times* "Terror in the Weather Forecast" (Homer-Dixon 2007). In a 2006 poll of more than 30,000 people from across the globe, majorities in all the surveyed countries said climate change was a problem—80 percent of those surveyed in the US and China rated it as a 'serious problem' (Brauch 2009c, 99).

---

[42]   Some scholars have marked this period as the beginning of a *fourth-phase* of environmental security research led by (global) inter-disciplinary experts from the natural and social sciences with the aim of converting the corpus of knowledge into concrete policy actions, *political geoecology* (Brauch, Dalby, and Oswald Spring 2011).

[43]   For more information on the increasing risk, destructiveness and prevalence of natural disasters (including climate specific ones) see the Centre for Research on the Epidemiology of Disasters (CRED), particularly at the Emergency Events Database EM-DAT which contains core data on the occurrence and effects of over 18,000 mass disasters in the world from 1900 to present day (http://www.emdat.be/).

In the realm of diplomacy and global governance initiatives, many European countries (including the UK) were viewed as leading on climate securitisation. Such was the momentum that a 2007 German report urged the EU to become a leading player in global climate policy as a means to counteract emerging Great Power rivalries and convince both the US and rising Asian powers of the importance to avoid dangerous climate change (Schubert et al. 2008, 1). This forward looking approach was also evident in the security policy realm, where global warming was included as early as 2003 in the *European Security Strategy* as a 'global challenge' (EU 2003, 2). A key feature of the European climate security discourse however, was the differentiation between securitisation and the role of the military. On the one hand, while European leaders sought to securitise climate change, they also argued strongly against militarisation of climate change policy and instead promoted "new" approaches to deal with the identified climate change threats. And yet—despite this—climate change began to enter into EU security discourse with European nations factoring the issue within their national security and defence policies (Brzoska 2012b).

In 2002, the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) published *Climate Change and Conflict: Can climate change impacts increase conflict potential?* that analysed the social and political implications of climate change and factors that contribute to environmental stress as a trigger for conflict. The report found that although there was no single causal linkage between climate change and conflict, it would nevertheless contribute to environmental stress and become a potential cause of conflict to 'challenge the survival of human beings and are thus a major challenge to human security' (Tanzler, Carius, and Oberthur 2002, 23). Equally, it also found that the impacts 'do not pose a military threat nor can they be solved with the traditional mindsets nor by the means of military services' (Tanzler, Carius, and Oberthur 2002).

In 2007 the German Advisory Council on Global Change (WBGU) published *World in Transition: Climate Change as a Security Risk* and identified a steadying intensification of climate threats in the coming decades. Echoing earlier findings by Homer-Dixon and others, WGBU identified six threats to international stability and security as a result of climate change that included risks to weak states, human rights, economic development, increased North/South tensions and migrations as well as risk of overstretching classic security policy. On this latter point *World in Transition* argued that 'a well-functioning cooperation between development and security policy will be crucial' but that ability of ''classic' security policy's

capacities to act are limited' (Schubert et al. 2008, 6). Once again, the military was viewed as having a limited role.

Peter Halden's 2007 report *The Geopolitics of Climate Change* commissioned by the Swedish Defence Research Agency (FOI) stated that climate change was unlikely to lead to an increase in conflicts in the short-medium term, but that unmitigated climate change could have serious consequences for international security in the longer term. Halden argued that the scale of climate change impacts is country dependent and will vary according to socio-political factors and the 'dynamics and structures that exist in regions and in the time when they occur' (Halden 2007, 32). Furthermore, since different political actors and social systems possess their own internal logics, they will each make different interpretations of how to respond to climate change. Thus, Halden stressed the importance of 'human cognition, volition and decision' such that 'the way in which *political* actors *perceive* changes in the climate and in the *politics of climate change* also matter greatly … If major actors, i.e. states, perceive climate change as a prelude to military conflicts and begin an arms race, then that course of action will trigger similar reactions among their neighbors and lead to a worsened security dynamic' (Halden 2007, 33; emphasis added). Though Halden noted that 'large scale shifts in terrain may have important military and political consequences, on strategic as well as operational levels … such as the opening of the Arctic' he argued that the 'climate is in itself not a threat and certainly not one that can be countered by military means' (Halden 2007, 36). The work by Halden sheds crucial insight into the importance of politics, not just from an overall securitisation perspective, but also from an understanding of military escalation as a result of (mis)perception by political actors. Halden's conceptualisation therefore reinforces this thesis' framework and the necessity to examine the political *and* the military aspects of climate securitisation.

In the UK, political geo-ecologist Hans Günter Brauch regarded that country as having the most intensive public-policy debate on the securitisation of climate since at least 2004 (Brauch 2009c, 88). Brauch specifically identified a number of actions and speeches he considered as constituting securitising moves. In 2004, David King (former UK chief scientific adviser 2000 – 2007) stated that climate change was a far greater threat to the world than international terrorism and in 2007 he called it the greatest problem that civilisation had ever faced (Brauch 2009c). In 2006, a highly influential report by the UK Prime Minister's Special Adviser, Sir Nicholas Stern titled *Stern Review Report on The Economics of Climate*

Change linked climate change to economic security. Stern argued that climate change 'demands an *urgent* global response' and represented 'the greatest and widest-ranging market failure ever seen' (Stern 2007, i & vi; emphasis added). Stern called for strong action early since 'what we do in the next 10 or 20 years can have a profound effect on the climate in the second half of this century and the next' (Stern 2007, i).[44] Failure to do so could create risks 'on a scale similar to those associated with the great wars' (2007, vi). In 2008, climate change was described by the UK National Security Strategy as 'potentially the greatest challenge to global stability and security' (HM Government 2008, 18).

In 2007, UK Foreign Secretary Margaret Beckett also identified climate change as a 'serious threat to international security' but one that 'the traditional tools of hard security – in simple terms bombs and bullets – are not going to be able to solve' (Beckett 2007). In a 2007 speech (*The Case for Climate Security*), Beckett considered climate change her top priority such that 'if we bury our head in the sand we risk our world being engulfed' and to avoid that will require a 'whole new approach to how we analyse and act on security' (Beckett 2007). She argued that 'the threat to our climate security comes not from outside but from within: we are all our own enemies. And what is at stake is not the narrow national security of individual states but our own collective security' (Beckett 2007). Recognising that the security community implicitly understands the core of the issue ('security goes right to the heart of the basic contract between state and citizen'), Beckett sought to enlist their direct engagement for two reasons: (1) they provide expertise of a qualitatively different perspective than other fields; and (2) they provide expertise in developing the analytical frameworks (scenario development) necessary for long range planning. Beckett was overt on the requirement to securitise climate change:

> Governments can't do this on their own. Nor can the private sector.
> Nor can individuals. We *all* have a part to play … So, understanding
> and *flagging up the security aspects of climate change has a role in*
> *galvanizing those governments who have yet to act*. And, for all of us,
> it has a role in setting the level of ambition – the political and

---

[44]   Stern estimated that to stabilise emissions at 550 ppm (CO_2e) the costs are 'likely to be around 1% of GDP by 2050' (Stern 2007). If left unchecked and temperature exceed 5°C warming then this cost could increase to 5 – 10 percent of GDP.

financial commitment − that is needed (Beckett 2007; emphasis added).

Former UK Special Representative for Climate Change, John Ashton placed it in equally stark terms, 'climate change is a security issue because if we don't deal with it, people will die and states will fail' (Brauch 2009c, 89). Adopting the European outlook, Ashton added that 'there is no hard power solution … you cannot force your neighbor to change its carbon emissions at the barrel of a gun' (Brauch 2009c, 89). On 14 March 2008, the EU released *Climate change and International Security* that argued 'climate change … [is] a threat multiplier which exacerbates existing trends, tensions and instability' and 'threatens to overburden states and regions which are already fragile and conflict prone' (Council of the European Union 2008). Preceding the release of this report, then British Foreign Secretary David Miliband and German Foreign Minister Frank-Walter Steinmeier jointly emphasised that climate change 'threatens our prosperity … it will reshape the geopolitics of the world in which we live' (quoted in Brauch 2009c, 93). Of significance—and some irony—Miliband and Steinmeier argued in favour of reinforcing the climate security aspects on the basis that it would avoid 'growing resentment between those most responsible for climate change [i.e., the North] and those most affected by it [i.e., the South]' (quoted in Brauch 2009c, 93). In effect, this strategy also called for a deliberate securitisation of climate change but one that saw no immediate role for the military:

> Ultimately, there is not hard power option for tackling the causes of the climate threat or for dealing with its direct impacts. You cannot use military force to build a low carbon global economy; no weapon system can halt the advance of a hurricane bearing down on a city, or hold back the rising sea. But what the emerging analysis on climate and security tells us is that we can be sure that there will be hard power consequences if we fail to rise to the challenges (Miliband and Steinmeier quoted in Brauch 2009c, 93; emphasis added).

And so the nuance of the UK position (even European position), becomes clearer. Climate change was a security issue, but it was not one that the military had any direct (up-front) role in addressing. Rather, the military sector was framed as a contributor toward broader government initiatives on climate change, as an institution that itself would require protection

and potentially as an option in the event of hard-power consequences unfolding. Nowhere was this more evident than in UK MoD climate policy where there existed a focus on reducing emissions, adapting the Defence estate and inculcating sustainable procurement so that it might act as a 'Force for Good in the World' and to 'play its part alongside other Government Departments' (UK MoD 2010b, 2). These themes were evident in the MoD's two key climate publications, *Climate Change Strategy* (UK MoD 2010b) and *Climate Change Delivery Plan* (UK MoD 2010a) as well as in the job description of Rear Admiral Neil Morisetti who was appointed as the UK Climate and Energy Security Envoy (HM Government 2010, 93). Whilst these actions contributed to a view that the UK MoD had the 'strongest formulations on climate change' (Brzoska 2012b, 173), they were formulations that revealed a far more nuanced climate securitisation discourse than was occurring in the US. It was a discourse that used securitisation (but with a *de-emphasis* on the military) as a means to achieve political outcomes. Hans Günter Brauch summed this position up when he wrote about the limited role for the military but the requirement for it (climate change) to be securitised since it would 'legitimate extraordinary and costly measures that require a progressive increase in energy efficiency and decarbonization of the energy system' (Brauch 2009c, 71). Extended to pan-European (and UK) outlook, climate securitisation was framed as a necessity to drive global political action on climate change (particularly with the aim of influencing the positions of US and large emitting Asian nations) but it was not one in which the military would be a major player. The subsequent replacement (and effective withdrawal) of the 2010 UK MoD climate policies by the more generic MoD 'sustainability' strategies was further evidence of the lower profile of the UK military in its climate security discourse.

Climate security discourse in the US differed from this, particularly on the nature of military involvement. While the divergence of broader US and European policy outlooks on climate change have been captured elsewhere (Skjærseth, Bang, and Schreurs 2013, Erbach 2015), very few instances have empahsised the difference in security responses to climate change across the Atlantic, particularly as they relate to the security institutions themselves (Hayes and Knox-Hayes 2014). Initially, discussion of climate change impacts on US national security increased significantly following the release of IPCC AR4 (2007) and the election of President Barack Obama (2008), who made climate change a central policy platform. This was reflected by expanded climate security discourse in the US Congress (US Congress 2008) as well as key national security planning documents including the 2010 US *National Security Strategy* (NSS), 2010 US *Quadrennial Defence Review* (QDR) and other US

military and strategy papers (examined in depth in the US case study). The 2010 US NSS framed the danger of climate change as 'real, urgent and severe' and that it 'will lead to new conflicts over refugees and resources; new suffering from drought and famine; catastrophic natural disasters; and the degradation of land across the globe' (White House 2010, 47). The 2010 QDR stressed the need to adjust to the impacts of climate change on facilities and military capabilities and announced a 'complete a comprehensive assessment' of climate risks (US DoD 2010, 85). Similar statements and updated provisions were contained in subsequent releases of US NSS (White House 2015) and QDR publications (US DoD 2014b). Government pressure on the US DoD to act on climate change also came in the form of presidential orders (White House 2009, 2013) and the US DoD was repeatedly identified to address climate change 'high risks' to its estate by the independent US Government Accountability Office (US GAO 2015). The imperative to act on climate change from the highest levels of US government were given prominence by several high-ranking *serving* US military officers who spoke on the risks of climate change (Mullen 2011, also see Admiral Locklear in Werrell and Femia 2014). Lastly, the US DoD and individual service arms also set about addressing climate risks through publication of several climate change adaptation and mitigation strategies (US Navy 2009a, 2010b, US DoD 2012, 2013a, USACE 2014, US DoD 2014a, 2016) which by 2015 had filtered through to the tactical level Geographic Combatant Commanders for implementation (US DoD 2015b).

In short, the US military from at least 2010 was poised to undertake large-scale analysis of how it might respond to the growing threat of climate change. Primarily, it portended a future in which the US military would be far more engaged in climate security issues and centering on threats to national security, energy security and risks to military capability, operations and infrastructure (Brauch 2011b, Brzoska 2012b).[45] By 2016, the US military was the most active in the world in its response to climate change, and this differentiated significantly from European and UK militaries. Before going further however, it is worthwhile to trace other

---

[45] There is much literature on US energy security as it relates to climate change. The US DoD *2010 Strategic Sustainability Plan,* for example, argued that the US military's reliance on oil and other fossil fuels poses four broad security challenges (1) tactical threat—as supply of fossil fuel energy to deployed land forces endangers troops and threatens missions; (2) strategic threat—as supply of fossil fuels around the globe to deployed forces is vulnerable at strategic choke points; (3) oil price volatility presents budget risk; (4) US DoD Homeland grid is vulnerable to supply disruption (including natural disasters). In this regard, efforts to reduce the US DoD emissions are framed as a way to lower both tactical and strategic risk to US national security.

factors beyond the US Government and DoD that gave rise to climate-security in US discourse.

From the mid-2000s onwards, climate securitisation in the US was brought to prominence by various think-tank publications, retired military officers and prominent departmental which aggressively called upon the US military to increase its understanding of climate risks on military energy use, defence infrastructure, force structure and on operational missions. The US think-tanks, partly funded and staffed by US military personnel, used particularly strong language to advocate for a much more vigorous and muscular military contribution than envisioned in European circles. As a case in point, in 2003 the US DoD Office of Net Assessments commissioned a report by Peter Schwartz and Doug Randall to 'imagine the unthinkable' and examine the impact of abrupt climate change on US national security. Using worst-case scenarios the report argued that climate change could lead to resource scarcity, mass migration and geo-political instability which might lead to 'skirmishes, battles and even war' (Schwartz and Randall 2003, 2). They concluded by noting that 'the risk of abrupt climate change … should be elevated beyond a scientific debate to a US national security concern' (Schwartz and Randall 2003, 3). The inference here was that climate change remained at the margins of US politics and that by securitising the issue it would enter the realm of "high" politics and thereby grasp the attention of US policy makers and the military.

The idea of climate security being taken seriously in high policy circles was given a lift by prominent contributions from a cadre of retired senior US military officers. Their particular involvement raised the profile of climate security discourse in the US and consolidated the perception of climate change as a 'threat multiplier'. Unlike European (and even Australian) discourse, the US one emphasised a distinct, proactive role for the US military in climate security matters. In 2007 the Center for Naval Analysis (CNA), comprised of a Military Advisory Board (MAB) of retired three and four star generals and admirals from the Army, Navy, Air Force and Marines, published *National Security and the Threat of Climate Change* that argued 'climate change poses a serious threat to America's national security' by acting as a 'threat multiplier for instability in some of the most volatile regions of the world' (CNA 2007, 6 & 7).[46] It tied climate change to energy security and called for climate change to be 'fully integrated into national security and defence strategies' (CNA 2007, 7). Also framing it

---

[46] This report was updated and re-released in 2014 as the *National Security and the Accelerating Risks of Climate Change*. See https://www.cna.org/cna_files/pdf/MAB_5-8-14.pdf.

as an opportunity, the report called upon the US military to 'enhance its operational capability' by improving its energy efficiency and for the DoD to assess climate impacts on US global military installations resulting from rising sea-levels, extreme weather events, and other projected climatic changes (CNA 2007, 8). In testimony before a 2007 House of Representatives hearing on "The National Security Implications of Climate Change", the Chairman of the MAB General Gordon Sullivan declared climate change a 'serious threat to America's national security' (Sullivan quoted in US House of Representatives 2007, 11) CNA also examined the operational dimensions of climate change in its 2007 report *Impact of Climate Change on Naval Operations in the Arctic*. Overall, the contribution of the Military Advisory Board under the auspices of CNA—and specifically the impact of having senior military officers (albeit retired)—cannot be underestimated in galvanising US military climate response. Rear Admiral David Titley (who led the US Navy climate change programs 2009 – 2011) reflected on this at the 2015 *The Australian Climate Security Summit*:

> The 2007 Military Advisory Board (MAB) got the whole thing going in the US. It was a catalyst and prompt for the 2008 National Defense Authorization Act to get the US DoD to examine the issue in some detail. It was incredibly influential. The MAB was a cadre of respected and retired "grey-beards" operating outside the government framework. It was one of the key levers in our system to get congressional action (Titley 2015).

In 2010 the Center for a New American Security (CNAS) published *Broadening Horizons: Climate Change and the U.S. Armed Forces* (co-authored by a serving US military officer, Commander Herbert E. Carmen (US Navy)) which stated that climate change would 'reshape the current and future security environment (Carmen, Parthemore, and Rogers 2010, 5). This report urged for US military involvement in climate geo-engineering debates; the centralisation of an Arctic military command; the consideration of having nuclear reactors on military bases as a means to generate carbon-free energy; the promotion of US DoD renewable and energy efficiency programs; and education for all US military services on how climate change will impact missions and capabilities. Again, it was far removed from European climate security discourse.

Other influential US think-tank reports included combined works by the Center for Strategic and International Studies (CSIS) and CNAS titled *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change*. This latter report echoed similar security risks of climate change that included increased North-South tensions; rising migration and immigration; increased public health problems; more intense resource conflicts; increased use of nuclear energy (as an offset to fossil fuel emissions); global governance challenges; and potential for increased domestic turbulence and in *extremis*, state failure (Campbell et al. 2007). The report surmised that climate change could have cascading security consequences which could overwhelm traditional instruments of national security, including the military.

In November 2007, the US Council on Foreign Relations (CFR) released *Climate Change and National Security*. Perhaps going further than earlier assessments, this report called for institutional reform in the US DoD, the US National Security Council and in the Office of the President to 'give voice to climate and security concerns' with the stated aim to integrate 'climate security concerns centrally into its National Security Strategy' (Busby 2007, 23). In 2008, the Office of the Director of National Intelligence also released *National Intelligence Assessment on the National Security Implications of Global Climate Change to 2030*, stating 'global climate change will have wide-ranging implications for US national security interests over the next 20 years' but that the most significant impact would be indirect as a result of 'climate-driven effects on many other countries' (Thomas Fingar cited in US Congress 2008, 19) . In 2009 the Central Intelligence Agency (CIA) opened the Center on Climate Change and National Security with a charter to examine the national security impact of climate change and led by speciliasts from the Directorate of Intelligence and the Directorate of Science and Technology (CIA 2009).

The overall sentiment of these and similar US think-tank reports was that climate change presented a new type of security threat that had largely escaped the attention of the US military. Indeed, *all* of the US think-tank literature examined by this literature review called for the inclusion of climate change security into the major national security planning documents and also for the military to commence its own large scale and systematic analysis of the risks. There was a prevailing sense that the US military may also find opportunity through new missions, new equipment and new infrastructure. Applying a Paris School approach (a *Foucaultian filter*), it might also be argued that by framing climate change in

such a manner, the US military could construct its own climate agenda ('regime of truth') to serve its own purposes and self-interest. In this context, the encroachment of the US military into climate change was perhaps less about the environmental aspects, and more about enhancing its own power. Some insight into this thinking can be found in earlier US climate statements. In 2001 the US Government—in a revealing submission to the UNFCCC no less—argued that military organisations can play an important role in reducing GHG emissions and stimulating technical innovation, but it also offered other advantages:

> Investments in military energy efficiency improvement are often cost-effective and can actually enhance defense and warfare capability. Efficient aircraft, ships and vehicles can be deployed more rapidly and require less logistical support. Equipment using less energy is harder to detect because there is lower hear, noise and emission signatures (US Government cited in UNFCCC 2002, 17) .

Of importance for this thesis, therefore, was the dual facade of US military intent in climate change discourse. On the one hand it possessed a humanitarian and even environmental dimension, but on the other hand there existed US realist school ideas of self-interest and using climate change (tied with 'energy security') to enhance military capabilities for warfighting and the maintenance of US military power. A further consideration, not to be underestimated, was the *political influence* that the entrance of the US military had on influencing wider US climate policy. Indeed, the prominent entrance of the US military into climate security discourse has been viewed by some as a powerful reframing which can (with other groups) exert influence on the US polity and government to 'meet the climate change challenge' (Szasz 2016, 152). Similar arguments have been made concerning the ADF's role in Australian politics (Thomas 2015b). These aspects form important thesis markers and are revisited during the case study analysis and discussion.[47]

The UN had also been active as both a securitising forum and as a securitising actor, though less bellicose than US discourse. Generally, the UN has focused on climate security discourse

---

[47] While the US case study examines US climate securitisation in more detail, it only examines policies and speech-acts until early 2013. More up-to-date information on US climate securitisation is available at various publications. The 2015 Climate Council report *Be Prepared: Climate Change, Security and Australia's Defence Force* contains a short summary of US climate securitisation, as does Thomas (2013). For a comprehensive discussion and links to on-line articles also see The Centre for Climate and Security at http://climateandsecurity.org/about/.

as a threat to international security. A number of debates have been held in both the UN General Assembly (UNGA) and the Security Council (UNSC) that reflect this. The UNGA had (informally and formally) debated the climate change security nexus on several occasions (31 July – 2 August 2007, 11 – 13 February 2008, 22 May 2008 and 14 April 2011). UNGA also released a number of resolutions and drove the annual Assembly agendas to include discussion on the "Protection of global climate for present and future generations". Resolution 63/281 *Climate Change and its possible security implications* (2009) further stated the assembly was 'deeply concerned that the adverse impacts of climate change including sea level rise, could have possible security implications' and invited relevant organs to intensify their efforts in considering and addressing the security implications (UNGA 2009).

The UNSC also held two debates on the security implications of climate change (2007 and 2011). Both debates highlighted divisions between those countries supporting securitisation of climate change and those countries that do not. In a media release following the 2011 debate, the Security Council 'expressed concern that the possible adverse effects of climate change could … aggravate certain existing threats to international peace and security and that the loss of territory in some States due to sea-level rise, particularly in small low-lying States, could have possible security implications' (UNSC 2011b).

In 2007 the UN Secretary-General Ban Ki Moon convened a High-Level Event on climate change to 'advance the global agenda'. In 2008 he declared climate change the 'top of the global agenda' and his top 'personal priority' in which he would ensure that the full resources of 'all the Funds, Programmes and Agencies of the UN' would aim to 'craft an agreement on action' at Copenhagen (Ki-Moon 2008). He also warned that climate change may pose as much a danger as war (Scheffran 2011, 735). Backing up the Secretary-General's position came UNDP Human Development Report 1007/2008: *Fighting climate change: Human solidarity in a divided world* which argued that lack of world focus on climate change risked progress on meeting Millennium Development Goals (MDG) and the Human Development Index (HDI).

In 2009, the UN Secretary-General released *Climate Change and its possible Security Implications* (A/64/350) that gathered the views of Member States and UN Organisations. Angela Oels (2012) considered this report the 'most authoritative political declaration on the

issue' (Oels 2012, 188). The report identified five channels through which climate change could affect security: (1) *vulnerability* by threatening food security, human health and exposure to extreme events; (2) *development* by undermining State capacity; (3) *coping* and *security* by migration and resource competition, (4) *statelessness* by disappearance of territory, and (5) *international conflict* from un-demarcated international resources (UN Secretary-General 2009). In direct contrast to US discourse that placed emphasis on 'threat multipliers', the UN report emphasised 'threat minimisers' to lower the risk of climate related insecurity (UNGA 2009). Notwithstanding these remarks, the report also reflected the international division by cautioning that 'the nature and full the degree of the security implications of climate change are still largely untested' (UN Secretary-General 2009). On this basis, IPCC AR5 was significant since it became the first such IPCC assessment report to directly examine climate security threats.

During the 2011 debate in the UNSC, Secretary-General Ban Ki-Moon pointed to the devastating impact of extreme weather and rising seas on lives, infrastructure and budgets. He noted an 'unholy brew' forging dangerous new security vacuums:

> The facts are clear: climate change is real and accelerating in a dangerous
> manner … it not only exacerbates threats to international peace and security;
> it is a threat to international peace and security (UNSC 2011b).

Recent research appears to validate such claims. A 2013 report by the Center for American Progress, for instance, found connections between climate change and the so-called Arab Spring uprisings from 2011 (Slaughter et al. 2013). Identifying climate change as an underlying stressor, the authors of the report cited how 'once-in-a-century' drought(s) and wild-fire(s) across the planet contributed to global wheat shortages and 'skyrocketing bread prices' across the Middle-East. These stressors contributed to 'the wave of popular protests, uprisings, civil wars, and regime change' that swept the Arab countries of the Middle East and North Africa region from late 2010 (Slaughter et al. 2013, 7 & 15). Such an assessment holds strategic significance, since it links what had widely been viewed as a decades-long security phenomena (climate change) with a real-and-present-day-danger (the Islamic State of Iraq (ISIS) and associated turmoil in Iraq and Syria). Placed in this context, climate change becomes the indispensable security threat of the twenty-first century.

4.4   The Contested Nature of Climate Securitisation

Having now examined the gradual securitisation of climate change from its general environmental connections to its placement on the highest levels of international political-military agenda, this final section explores its essentially contested nature.[48]

The case against. Even though climate securitisation has been promoted in European and US discourse, it has remained an essentially contested subject in the international arena. Two broad approaches are evident. On one side are states that have framed climate change as an issue outside the logic of security politics. That is, climate change should remain a non-securitised issue. With some notable exceptions (mainly some small island states), this position has been held by the G77 (including China, India, Brazil, Indonesia, South Africa and Pakistan), the Non-Aligned Movement (120 member states) as well as other major emitting countries such as Russia (Brauch 2009c, Sindico 2007). This bloc of countries (G77+) has argued that climate change is primarily a sustainable development issue best addressed in non-securitised, multi-lateral fora such as UN General Assembly, UNFCCC, World Meteorological Organisation (WMO), the UN Economic and Social Council and the UN Commission on Sustainable Development (Sindico 2007).

Justification of the G77+ position has been articulated in various UN forums since 2007. In the first UNSC debate, for instance, Pakistan argued that the 'ever increasing encroachment of the Security Council on the role and responsibilities of the other main organs' amounted to a 'distortion' of the UN principles that 'infringed on the authority of other bodies' (UNSC 2007). China has similarly argued in the UNSC that the 'Security Council has neither the professional competence in handling climate change – nor is it the right decision-making place for extensive participation … [it is] an issue of sustainable development' (UNSC 2007).[49] In 2011, Brazil argued 'security tools are appropriate to deal with concrete threats to international peace and security, but they are inadequate to address complex and multidimensional issues such as climate change'. Russia noted their skepticism to climate

---

[48]   In an effort to match the case study timeframe, the literature review mainly covers publications until 2013.

[49]   China's position was re-iterated (almost verbatim) in the 2011 UNSC debate, although it this was softened to acknowledge that 'climate change may affect security' (UNSC 2011). Not surprisingly, China has not included discussion of climate change in its 2015 White Paper. This contrasts strongly with that of the United States *National Security Strategy* (2010 and 2015) and previous Australian White Papers (2009 and 2013).

securitisation by arguing it would 'bring no added value whatsoever and would merely lead to a further politicisation of the issue and increased disagreements' (UNSC 2011).

The implications of major states such as China, Russia, Brazil, Pakistan and others arguing *against* climate securitisation is significant for its impact on their respective militaries approach to climate change. Simply put, the militaries of these nations do not appear to be proactive (publicly at least) in climate change discourses, including climate security issues or on military climate adaptation or mitigation more broadly (Brzoska 2012a). The recent 2015 Chinese White Paper on Military Strategy, for example, failed to discuss or mention climate change (PLA 2015). In this manner, differences emerge between militaries around the world regarding their outlook on, and approach to, climate change—particularly between the militaries of pro-securitising nations and "anti-securitisation" nations. This has policy implications and potential to make it difficult for militaries to work together on climate security issues.

Additional arguments against securitisation have included the counter productiveness toward adaptation and mitigation efforts (i.e., a diversion of resources) and a concern over the sovereign rights of nations to control emissions within their borders. Scholar Christopher Penny has raised such concerns by arguing that normalisation in institutional mechanisms such as the UNSC might (under a worst case scenario) lead to application of Chapter VII enforcement measures thereby threatening state sovereignty (Penny 2007). This facet raises a largely unspoken aspect of climate militarisation in which the military may be used to enforce emissions reductions. Maria Trombetta has pursued this argument, writing that climate securitisation would result in 'confrontational politics, with states adopting politics to protect their territory … the Security Council adopting resolutions to impose emissions targets, and even military action against factories; and surveillance systems to monitor individual emissions' (Trombetta 2008, 599).[50] The portrayal is one of suspicion regarding the military sector intent and accords with Paris School ideas of illiberal practices contributing to the politics of insecurity.

---

[50] Paradoxically, the closest approximation to this made by government representatives was made by the President of Bolivia who called upon the Security Council to 'adopt resolutions on sanctions or reparations that effectively hold those countries responsible for the damage' (UNSC 2011a). The President went on to argue for a 10 – 20 percent reduction of military expenditure in developed countries to fund adaptation and mitigation in developing countries (namely small island states, African countries, mountain countries and all poor regions of the world affected by the problem) (UNSC 2011a).

Scholarly critique of climate securitisation has also focused on the lack of peer review process, use of dubious data and suspicion that the (US) military-industrial complex is actively promoting climate threats out of self-interest. Scholars Ragnhild Nordas and Nils Petter Gleditsch (2007) in *Political Geography*, for example, argued that reports on climate change and conflicts are not peer-reviewed and has resulted in 'statements about security implications [that] have so far largely been based on speculation and questionable sources' (Nordas and Gleditsch 2007, 628). With possible reference to the US think-tank publications on climate change, these authors called for more empirical work rather than reliance on "taken-for-granted" scenarios. Michael Brzoska adopted a similar position, noting that although significant securitising moves that had occurred since 2003, 'the framing of climate change as a security issue remains contested … there is neither a consensus that climate change is a security threat, nor agreement on what and who will be threatened by climate change'(Brzoska 2012b, 165). Especially relevant for this thesis, Brzoska emphasised that while climate change has been framed to add demand for the military there is 'little agreement on what these measures should be, with resource conservation by armed forces, larger capacities for humanitarian action, or a general build-up of armed forces' (2012b, 172). In short, Brzoska noted 'the practical implications for armed forces arguing for the climate change and security nexus have so far been very limited' (2012: 172).

Focusing on the military acting in self-interest, Maria Trombetta has warned against militarising the environment and has questioned the credibility of climate security threats conjured up by 'think tanks that are close to the military' (Trombetta 2012, 159). This outlook has also been championed by Betsy Hartmann who opined that climate security is 'old wine in a new bottle' and argued against the potential colonisation of the climate change debate by the military with the risk it could impose authoritarianism, secrecy and illiberal practices (Hartmann 2010, 234). Hartmann has lamented the lack of empirical data and a failure by some to understand the complexities involved (the 200 million refugees cited by Stern and others is 'essentially conjured up ... on the basis of already dubious statistics') and that the crisis narrative serves vested interests of private defence contractors, think tanks and the military (Hartmann 2010, 235). For Hartmann, the framing of climate change as a security problem has presented a mistaken pathway and produced a 'climate conflict narrative that goes uncontested' (ibid). More specifically, she argues that the 'beating of the climate conflict drums' must be viewed in the 'context of larger orchestrations in US national

security policy' where a weakened State Department has given way to a militarisation of humanitarian aid (2010, 242). In this context, she upholds the critique of the Paris School by warning of the encroachment of the military, 'unnecessarily and threatening to militarize not only climate policy, but also development aid' (Hartmann 2010, 242).

The arguments presented by critics of climate securitisation are important markers for this thesis. Specifically, they highlight the importance of casting a particularly critical outlook on military claims that climate change is a security threat requiring military means to address it. This should even apply in the context of humanitarian aid and disaster relief, for it should not be beyond expectation that military expansion in this area would be singularly focused on "soft" missions alone. This is especially relevant for small militaries like the ADF. Perhaps more difficult to assess, however, are those same claims made by politicians directly involved in formulating national security policies. What were their influencing factors? Was it, as Hartmann alluded, a case that 'many politicians will do anything for the Pentagon' (2010, 241)? Or, were other more nuanced political factors at play? If the process of securitisation is to be better understood, a similarly critical approach needs to be applied to the rhetoric and policies of the political class as to that of the military.

The case for. The alternate position has argued for a more comprehensive approach to deal with climate change. First, as a sustainable development issue in non-securitised fora as advocated by the G77+, but—and this is the critical difference—also as a security issue in forums such as the UNSC and also via national security institutions and architectures. Nations that advocate this position argue that climate change should be a securitised issue because it galvanises the appropriate forums to directly address the security challenges caused by a rapidly changing climate. In addition, securitising climate change instills prominence and urgency that can be lacking in non-securitised forums.

Pro-securitisation has occurred mainly amongst the industrialised nations including the EU, the US, Australia, Canada and a number of small island states who face more immediate climate risks. Within this bloc, Sindico (2007) distinguished three primary groups as (1) those wanting to raise awareness of climate change; (2) those focused on conflict prevention; and (3) the most vulnerable small island states. The UN Secretary-General also strongly advocated this position and—on the point of the security threats—declared: 'Climate change is real, and it is accelerating in a dangerous manner. It not only exacerbates threats to

international peace and security, *it is* a threat to international peace and security' (Ban Ki-moon quoted in UNSC 2011b; emphasis added). On the threat of climate change, US Ambassador to the UN, Susan Rice, argued during the 2011 UNSC debate that 'the security and stability of every nation and every people are in jeopardy. Our prosperity, health and safety are in peril. Time is not just moving ahead: time is running out. Climate change has very real implications for peace and security' (Susan Rice quoted in UNSC 2011b). Rice pointed out that the Security Council had an 'essential responsibility to address clear-cut peace and security implications of a changing climate' but lamented that 'the refusal of a few' had obfuscated recognition of the problem, resulting in a 'dereliction of duty' that was 'pathetic' (Susan Rice quoted in UNSC 2011b).[51] As noted above, US moves to promote climate change as a security issue has resulted in more fulsome engagement by its military on the issue.

For its part, Australia (until 2013) largely supported US position on framing climate change as a security issue in international fora. During the 2007 and 2011 UNSC debates, Australian delegate Richard Marles labelled climate change a 'primordial threat to our planet' and mirrored the US position by arguing 'the Security Council has a role to play as the principal organ directly responsible for maintaining international peace and security'(Richard Marles quoted in UNSC 2011b). Despite this, the election in 2013 of a centre-right government (somewhat less inclined to action on climate change than the previous centre-left government) highlighted divisions within the pro-securitising countries. These differences were on display at the 2014 Brisbane G20 summit during which the Australian Government led by the then Prime Minister Tony Abbott, sought (against the wishes of the US) to remove climate change from the agenda (Scott and Vogler 2014, The New Daily 2014). Under a centre-right government, climate change garnered far less prominence in Australian politics, including on the idea that it was a security concern (Abbott 2010, Thomas 2015b). During his first major address on national security in the Australian Parliament, for example, then Prime Minister Abbott did not mention climate change at all (Abbott 2014). This contrasted sharply with previous Australian centre-left governments under Prime Minister's Julia Gillard and

---

[51] Along similar lines, countries from within the Alliance of Small Island States (AOSIS) have argued that climate security threats have already materialized, arguing that 'food security, water security and public safety are already being undermined. Sea level rise is eroding our coastlines and … is damaging critical infrastructure … some island may disappear altogether' (UNSC 2011a). The 2011 AOSIS spokesperson noted that while the General Assembly should continue to address the sustainable development aspects of climate change, it was imperative that the Security Council coordinate 'a response to the security implications … including … disaster planning and preparedness, detailed assessments of vulnerability and risk, more effective multilateral coordination and preventative diplomacy' (2011a).

Kevin Rudd. The important point to be made—where climate security is concerned—is the triumph of domestic politics over the international and the somewhat tenuous nature of the wider Western-led climate securitisation agenda.[52]

A far broader issue therefore, was whether or not climate securitisation had in fact been successful in its intended aim of forcing global political action on emission reductions. For Brauch, successful securitisation ultimately depended on the success of the 2009 Copenhagen conference—framed at the time as the high point of global climate policy and supposedly one of the final chances to limit planetary warming. The gross failure of this conference however and subsequently weak agreements, led Angela Oels to conclude that 'all observers agree that the securitization of climate change has failed' (2012: 192). Ole Wæver himself declared climate security a case of 'all dressed up and nowhere to go' (quoted in McDonald 2012, 582). And Australian critical security scholar Matt McDonald agreed with this assessment, arguing in his 2012 essay *The Failed Securitization of Climate Change in Australia* that '[t]he gap between language and political action is a particularly striking dimension of this puzzle' (McDonald 2012, 580). Certainly, when compared against the emergency measures and urgency taken by the US (and Australia) regarding September 11 this position has merit. But other scholars have taken a more balanced approach. Michael Brzoska for instance argued that though securitising moves have not produced emergency measures as such, they have had the effect of ensuring climate change has become widely accepted as a security issue among national security elites, and that it has made armed forces focus on the disaster management consequences of climate change (Brzoska 2012b, 175). Maria Trombetta further added that 'it would be problematic to dismiss [climate securitisation] … because they have bought about new institutional arrangements and the appeals to security call for sets of practices that distance themselves from the logic of emergencies' (Trombetta 2012, 160).

4.5   Chapter Conclusion

This chapter has examined the securitisation of the environment and climate change from its historical beginnings in the 1960s through to its inclusion in the primary national security documents of the US and the UK in the late 2000s. The literature review revealed

---

[52]   Canada, formerly under the centre-right government of Prime Minister Stephen Harper, was another example of domestic climate change politics being favoured over broader Western-led initiatives to securitise climate change.

that climate change remains a contested security issue. Many scholars have also concluded that securitisation has failed. The available literature also suggests that while climate change has largely entered the mainstream national security thinking of many developed nations, it has been broadly rejected by developing ones who variously frame securitisation as an attempt by industrialised wealthy nations to obfuscate reducing their own emissions, thereby shifting the cost burden. This schism has been noticeable during debates held at various UN fora since 2007. In addition, although the West has been conveniently portrayed as a "unity ticket" on climate securitisation, recent domestic political circumstances have rendered this somewhat invalid. The 2013 change of government in Australia, for instance, from a centre-left to a centre-right party resulted in a curtailing of climate change programs, including a reversal of attempts to frame it as a security issue.

Other distinctions in climate securitisation are also evident. While some scholars and political leaders argue in favour of securitisation as a means to raise the policy priority, they simultaneously caution against militarisation noting that the threat of climate change cannot be solved through the 'barrel of a gun' (Brauch 2009c, 89). Simultaneously, however, these same advocates recognise the military as first responders, particularly in their capacities for humanitarian aid and disaster relief delivery but also in situations where climate change may be exacerbating existing tensions, flaring violence and precipitating hard-power security options. In addition, other commentators have noted the military's capacity to contribute to broader national climate change through their skills in areas such as scenario planning.

Despite this, there remains little empirical or systemic analysis of how Western militaries have responded to climate change. While there is broad recognition in developing countries that they have *some* role to play, there has been no systemic attempt to examine whether the military sector itself has been responsive to the securitisation agenda or, indeed, whether it shares the same views as their political leaders that frame climate change as an urgent threat requiring some kind of exceptional response. As was noted in the introduction, militaries are conservative institutions that are not prone to adopting fads that can distract from what they believe to be their core task. This is particularly true for small militaries on limited budgets such as the ADF. The self-declared Hobbesian, former Australian Chief of Army Lieutenant-General David Morrison put this frankly when he observed: 'we exist to defeat the nation's enemies' (Morrison 2013). And yet, this unitary description of the military's *raison detre* may itself be questioned—more so as increasing evidence emerges on connections between

climate change and human / state (in)security. The following case studies therefore seek to add to our understanding of these questions by further analysing the response to climate change by the US and Australian political-military sectors.

PART III

CASE STUDIES IN CLIMATE SECURITISATION

Chapter 5: Case Study Method

This chapter describes the case study method. The primary analytical frameworks used were derived from the Copenhagen and Paris Schools, discussed in the introduction. On the former, the Copenhagen approach informed the examination of how climate change has been framed both as a security issue and in terms of emergency measures. Traditionally, the military has been held aloft as an important securitising actor, but as has been shown in Chapter's three and four, its role is more dilute, less certain and somewhat contradictory in relation to the security threats posed by climate change. Speech-acts by political and military elite are viewed as particularly relevant in securitisation studies and these formed a core part of the material analysed. In the second instance, Paris School concepts informed examination of military-bureaucratic programs that rendered climate change governable as a security issue. This aspect ensured a critical examination of military climate policies, programs, doctrine as well as grey literature with the aim of determining where the weight of military climate response was being directed and whether or not they were acting beyond declared policy or not.

Having established a conceptual framework, this paper examined a total of 1,569 documents from the Australian political-military sector and 2,093 from the US political-military sector, across the period 2003 – 2013. Tables 4 and 29 in the respective case study chapters detail *where* (in terms of location within the respective bureaucratic structure) the documents were (openly) sourced from. Once the documents were sourced, each was individually formatted into portable document format (.pdf) in Adobe Acrobat and then uploaded into the content analysis software tool, *NVivo*. During uploading, all documents were also individually classified according to their *year* (of publication), *author*, document *type* (e.g., speech, policy, media or journal) and political *affiliation* (if applicable). A complete list of documents and their classification details are at Appendix 1.[53] The use of *NVivo* enabled a large-N sample to be analysed much faster, in greater volumes and with arguably more precision, accessibility and traceability than standard (manual) data collection and assessment methods.

---

[53]   Available on request from author.

Following data preparation, quantitative content analysis was applied.[54] This was performed in *NVivo* with the use of key-word search function (textual searches included *climate change*, *global warming*, *changing climate* and other like-terms). All key-words (and the surrounding text) were then analysed for their relevance to *contextual* or *temporal* framing as indicated in the introduction. Relevant passages of text were then *coded* into a securitisation framework developed by the author during the course of the research (see Tables 2 and 3). The coding method was adapted from Bernard and Ryan (2010) and is included at Appendix 2. Coding of text into the securitisation framework was primarily used to address aspects related to the Copenhagen School (specifically the framework in Table 2 addressed contextual framing and that of Table 3 addressed temporal framing).

Level 1: Broad	Level 2: Refined	Level 3: Specific
Securitised Frames	1 General security reference 2 Global and regional security 3 National security 4 Human security 5 Energy security 6 Environmental security 7 Biosecurity 8 Convergence/Multiple security impacts 9 Resource security(excluding energy) 10 Non-traditional, new, emerging security issue	a. Opportunity b. Neutral c. Challenge d. Threat
Non-Securitised Frames	1 Economic 2 Agriculture 3 Forestry 4 Energy and Resources 5 Environment and Sustainability 6 Government and Regulatory 7 International and Global 8 Health 9 Transport 10 Other / non-aligned	

Table 2. Securitisation framework for analysing contextual framing.

In regards to securitised/non-securitised framing (Table 2), a three step process was used. The first step was to decide whether climate change had been framed in a securitised or non-securitised manner (Level 1 "Broad", at Table 2). The second step was to identify the specific

---

[54] For the general method undertaken in this process, see: Bernard, Harvey and Gery W. Ryan. 2010. *Analyzing Qualitative Data: Systematic Aproaches.* California: SAGE Publications, pp. 287 - 310.

securitised or non-securitised category (Level 2 "Refined", at Table 2). For example, was climate change being framed as an energy security issue or as a national security issue or was it rather framed in (non-securitised) economic, agricultural or health terms? The third step was to identify whether climate change had been framed as a *threat*, *challenge*, in *neutral* or benign terms, or as an *opportunity* (Level 3 "Specific", at Table 2). An overall example of how this method was applied can be made by examining the following passage that was coded from a speech given by Prime Minister Kevin Rudd to the Australian Parliament in 2008, *The First National Security Statement to the Australian Parliament*. During this speech, Rudd (2008g) stated: 'climate change represents a most fundamental national security challenge to the long-term future'.[55] This passage was coded as a *challenge* (Level 3) within the realm of *national security* (Level 2) in the context of a *securitised* frame (Level 1).

Temporal Frame	Qualifying Description	Timeframe (years)
Urgent	An urgent issue requiring immediate action.	0 - 2
Short term	Response required in decadal timeframe.	3 - 10
Medium term	Response required but not in short term, response required / effects felt decade plus.	10 - 20
Long-term	Strategic response required or taking effect over decades.	20 +

Table 3. Securitisation framework for analysing temporal framing.

The second securitisation framework (Table 3) examined temporal framing. The intent here was to determine whether political elite and military forces framed climate change as an urgent issue requiring emergency measures or as a longer-term issue justifying an incremental response (or no response at all). An example of temporal framing can be given by examining a passage of text from a response given by the Australian Deputy Secretary Strategy Michael Pezzullo in 2007 to the Standing Committee on Foreign Affairs, Defence and Trade. In response to a question, Pezzullo commented that 'the strategic implication of climate change in a security sense … are likely to be felt more over a 40 to 50 year period'

---

[55] Kevin M. Rudd, 2008. *The First National Security Statement to the Australian Parliament by the Prime Minister of Australia the Hon. Kevin Rudd MP*. Accessed at http://www.royalcommission.vic.gov.au/getdoc/596cc5ff-8a33-47eb-8d4a-9205131ebdd0/TEN.004.002.0437.pdf.

(Michael Pezzullo quoted in Commonwealth of Australia 2007a, 102). This passage was coded as framing climate change as a long-term (security) issue.

During the coding process, coding rules were established that limited the number of codes per document and for bodies of text that might have been repetitious across or between levels in the bureaucracy (intended to remove skewing or bias). That said, the method could have been strengthened by having independent verification of coded text or, in a more advanced manner, through the application of algorithms to search the documents for pre-set combinations of text.

In the absence of these measures, however, the author also used qualitative content analysis (or more commonly, textual analysis) of important speeches, policies and other such documents. Textual analysis of key documents enabled the quantitative findings established from the securitisation frameworks described above, to be placed in a much broader context. This helped build a more complete outlook on how Australia's political elite and military institutions approached climate change as a security issue.

Overall, the use of securitisation frameworks in combination with *NVivo* enabled securitisation to be *quantified* in ways that have not been previously done in this particular research field. This quantification-of-securitisation also enabled the outcomes to be represented in graphical format, making interpretation readily accessible and easier to grasp. For instance, since each individual document was codified, distinct patterns emerged that made it possible to analyse *when* securitisation had occurred, *who* was responsible for it (including an assessment of which parts of the bureaucracy) and from *what* type of artefact it had originated. Such a framework is useful for securitisation researchers seeking to empirically examine certain case studies.

Appendix to Chapter Five

Appendix 1: Case Study document list (digital format available only).

Chapter 6: Climate Securitisation in Australia's Political and Military Sector

6.1 Introduction

This case study examines, through the prism of securitisation theory, how the Australian Defence Force (ADF) and selected areas of the Australian political establishment responded to climate change between 2003 – 2013. In total, this case study examined 1,569 documents that consisted mostly of speech-acts but also included media publications, journal articles, military doctrine and departmental policy.

The research boundary for this case study was grouped into three separate levels or programs: Strategic, Operational and Tactical. Table 4 shows how the case study was structured and also enumerates documents, by type, that were examined for each level. This approach identified any evidence of securitisation and highlighted divergence within and between the different levels of the political and military establishments and it also made a consistent framework for the US case study. The Strategic level for this case study included examination of documents from the Prime Minister, Minister for Defence (MINDEF), Chief of Defence Force (CDF) and Secretary for Defence (SECDEF). The Operational level included seven areas within the Australian Department of Defence including Defence Support Group, Chief Information Officer Group, Defence People Group, Defence Science and Technology Organisation, Vice Chief of Defence Force, Capability Development and Defence Materiel Organisation. The final level considered in this case study were the service arms of Army, Navy and Air Force as well as examination of documents from Intelligence and Joint Operations Command.

This case study is presented in two main sections. Section 6.2 presents results and discussion of the Australian Strategic Programs while Section 6.3 presents results and discussion of the Operational and Tactical level programs. The format for each section is a combination of results derived from the coding process combined with an initial discussion and interpretation of the findings (a more complete synthesis is undertaken at Chapter eight). The results and discussion are also supplemented throughout by a description of key events, quotes and actions (e.g., policies) that attempt to provide a richer, more accurate and contextualised account of climate securitisation.

Supplementary details of the method for this case study is included at Appendix 2. For ease of presentation, only the data and outcomes considered important for this thesis have been included in this chapter.

| | Program | Document Type | | | | | Total |
		SPR	DTN	S&A	MDA	JNP	
Strategic	Prime Minister	3	0	153	20	0	176
	National Security Advisor	1	0	4	0	0	5
	Minister of Defence	5	0	148	28	5	186
	CDF and Secretary	29	0	196	15	39	279
Operational	Defence Support	5	0	8	1	0	14
	Chief Information Officer	2	1	1	0	0	4
	Defence People Group	0	1	0	0	24	25
	Defence Science & Technology	0	0	15	2	71	88
	Vice Chief of Defence Force	0	7	5	1	57	71
	Capability Development	5	1	0	1	0	7
	Defence Materiel Organisation	1	0	14	2	75	92
Tactical	Navy	0	3	22	1	213	239
	Army	4	1	51	4	143	203
	Air Force	0	9	14	1	124	148
	Intelligence	1	0	1	0	0	2
	Joint Operations Command	0	12	17	0	2	31
	Total	56	35	649	76	753	1,569

Table 4. Australian case study: Sources, domains and numbers of documents examined. *Strategic*, *Operational* and *Tactical* represent the three different domains of the national security establishment. Each domain consisted of various *Programs* from where each document originated. (Document Type: SPR = Strategic Policy, DTN = Doctrine, S&A = Speeches and Announcements, MDA = Media, JNP = Journals, Newspapers and Other publications).

6.2   The Strategic Level

Introduction

To better understand the climate securitisation actions of the military, it was important to examine how Australia's political leaders responded to climate change. For the purpose of ensuring the research remained within an achievable scope, a decision was taken which narrowed examination of speeches in the political realm to the offices of the Prime Minister

and Minister for Defence. The military-strategic areas considered by this case study in the Strategic Program were Chief of Defence Force (CDF), Departmental Secretary (Defence) and (a very limited number) from the National Security Advisor. Total artefacts considered for the Australian Strategic level was 646 (see Table 4).

The strategic level—commonly referred throughout as *Strategic Programs*—represented the *ends* through which national strategy was implemented via *ways* and *means*. Collectively, each of the areas within Strategic Programs were considered instrumental in the formulation, development, direction and articulation of Australian strategic and defence policy across the period 2003 – 2013. *Ipso facto*, these programs formed the basis of Australian strategic policy and their rhetoric and actions in relation to climate change were considered crucial in setting Australia's climate security agenda.

Overview of the Strategic Level

A word search for *climate change* and like terms within all 646 artefacts in the Strategic Programs returned 165 separate sources containing 945 direct references. Of these 945 references 76 were coded in a securitised frame while 285 were coded in a non-securitised frame (Table 5).[56] The following passages provide an overview of the strategic level (results are aggregated to discern any large scale trends).

Frame	Strategic Program				
	PM	NSA	MINDEF	CDF	Total
Securitised	37	1	27	11	76
Non Securitised	246	6	14	19	285
Total	283	7	41	30	361

Table 5. Climate change framing in Australian strategic programs, 2003 – 2013.

Securitised frame. The most common securitised categories are shown at Figure 10. This shows that when climate change was framed as a security issue within the Strategic

---

[56]   Non-securitised references consist of 'Other Context' and 'Defence Context'. A total of 584 references were not coded as they were considered not relevant or were repetitious.

Programs, it was predominately done so as (1) a global and regional security issue; (2) as a non-traditional security issue; and (3) as a national security issue.
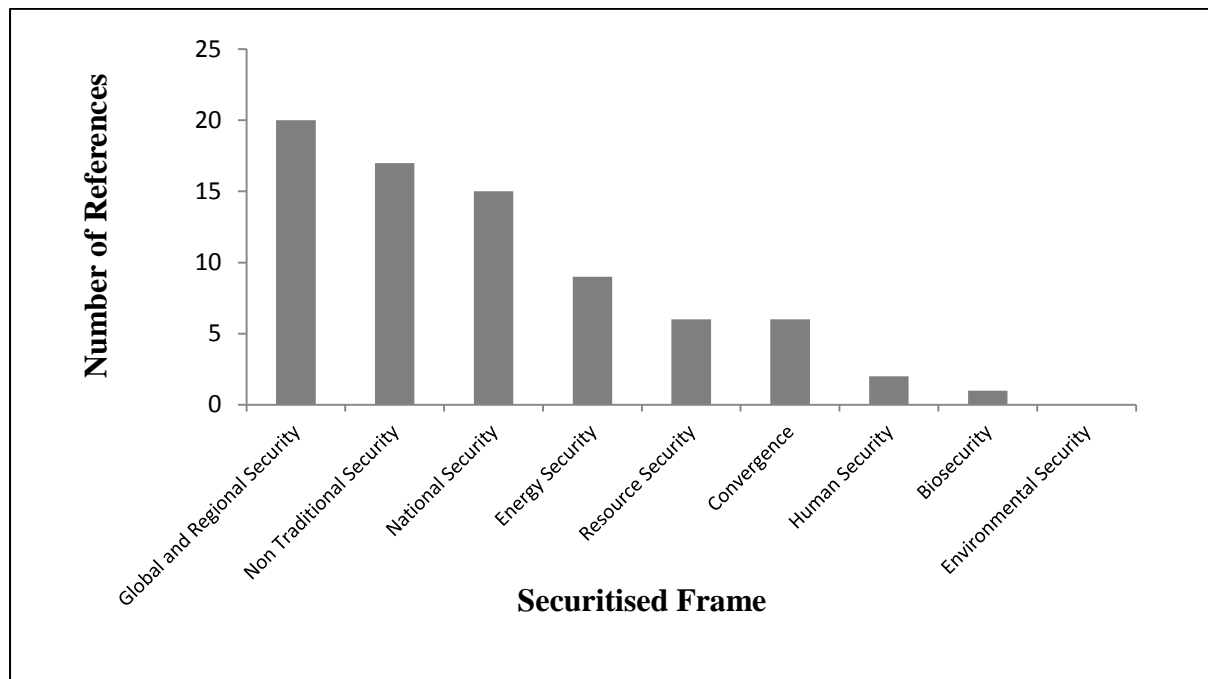
Figure 10. Contextual framing of climate security, strategic level 2003 – 2013 (AU).

Table 6 shows that when climate change was framed as a security issue it was predominately done so with robust language (*challenge* and *threat* were coded 43 times against a *neutral* context which was coded 33 times). Significantly, climate change was never found by this research to be framed as an *opportunity* within a securitised context. This might suggest that there was a lack of consideration of the "upside" risk, or of the strategic opportunities climate change may yield.

Frame	Strategic Program				
	PM	**NSA**	**MINDEF**	**CDF**	**Total**
Opportunity	0	0	0	0	0
Neutral	16	0	12	5	33
Challenge	15	1	13	4	33
Threat	6	0	2	2	10
Total	37	1	27	11	76

Table 6. Language used to frame climate security issues, strategic levels (AU).

Non-Securitised frame. The most common non-securitised categories for Strategic Programs are shown at Figure 11. This indicated that when climate change was framed as a non-

securitised issue within Strategic Programs it was done so as: (1) a global issue; (2) an economic issue; and (3) an energy/resource issue.
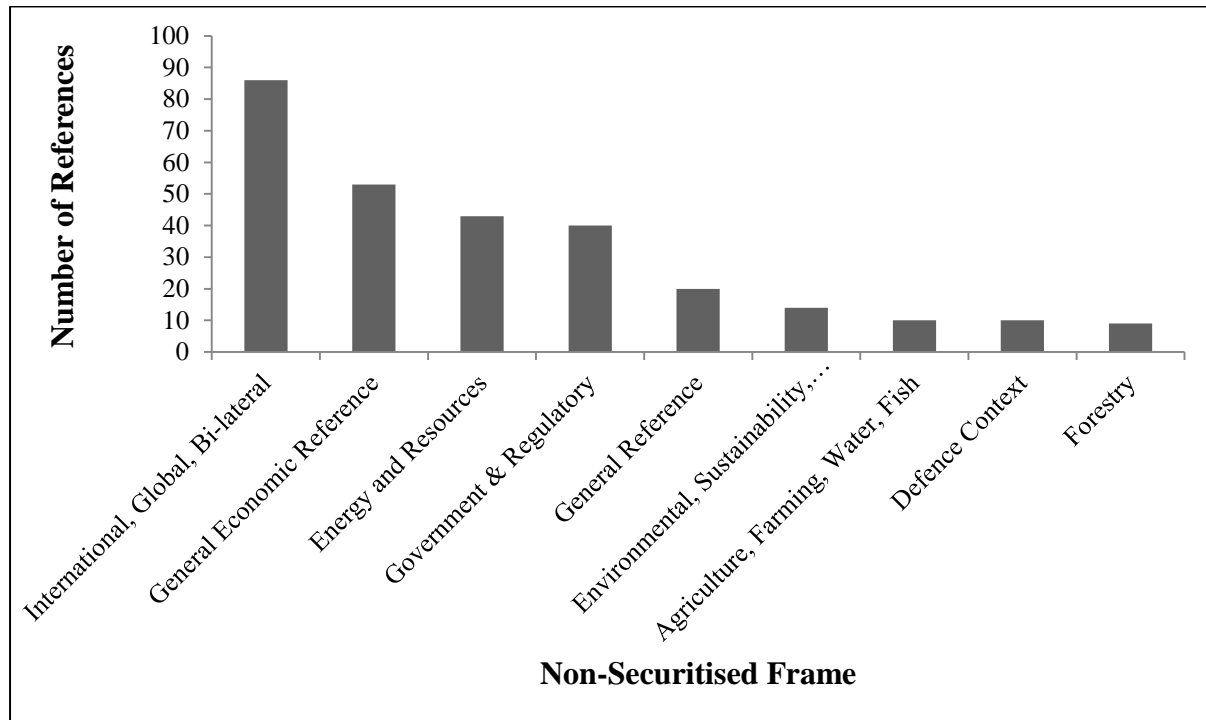
Figure 11. Contextual framing of climate issues (non-securitised), strategic level (AU).

Table 7 shows the specific language used to frame non-securitised references for all Strategic Programs. In this context, climate change was slightly framed as a heightened threat (*challenge* and *threat* were coded 145 times against *neutral* and *opportunity*, coded 140 times). Climate change was framed as an *opportunity* on four occasions in a non-securitised context.

Frame	Strategic Program				
	PM	NSA	MINDEF	CDF	Total
Opportunity	4	0	0	0	4
Neutral	111	4	5	16	136
Challenge	114	2	9	1	126
Threat	17	0	0	2	19
Total	246	6	14	19	285

Table 7. Language used to frame climate change as a non-securitised issue. (Data shown here is only for Australian Strategic Programs analysed by this thesis).

These results, collectively describing the outcomes of how the strategic levels framed climate change, are useful in gauging broader trends but are limited in discerning the finer points of

the securitisation discourse. This was evident particularly in relation to the differences that emerged through time and across different actors. In order to gain a better understanding, the following sections describe the results for the individual Strategic Programs.

Prime Minister(s)

The Prime Minister Program analysed 176 artefacts, and found 87 separate sources containing 657 references to *climate change*. Table 5 shows that for the Prime Ministerial Program, 37 references were coded in a securitised context and 246 were coded in a non-securitised context. These results indicated that climate change was collectively framed as a non-securitised issue by Prime Ministers John Howard, Kevin Rudd and Julia Gillard.

However, further analysis of the Prime Ministerial Program revealed large differences in approaches to climate change and climate security between the centre-right and centre-left of Australian politics; specifically between centre-right prime ministership of John Howard (1996 – 2007) of the Liberal Party of Australia and against the centre-left prime ministerships of Kevin Rudd (2007 – 2010) and Julia Gillard (2010 – 2013) of the Australian Labor Party. The following sections examine this in further detail. The empirical results are supplemented by detailed quotes that serve to build a securitisation narrative and provide greater understanding, context and robustness.

Prime Minister John Howard

I retain some degree of scepticism about … climate change.

John Howard (2006)

In order to understand how Prime Minister John Howard approached climate change as a security issue, it is critical to understand the broader context within which he framed climate change. To do this, the following section starts by examining the non-securitised aspects of climate change. Indeed, this research found that Prime Minister John Howard had primarily framed climate change as a (non-securitised) economic and energy related issue (Table 8). Howard's early rhetoric was decisively more neutral than Rudd and Gillard (Table 9) and his self-declared 'balanced approach' to climate change was characterised by long-term strategies that would not undermine Australia's economic competitiveness. Though he accepted he was often cast as a 'climate skeptic', Howard's (2006a) central ambivalence

related to 'the intensity and pace of damage being done by climate change'. For Howard, the *rate* of climate change meant 'long-term climate change' (Howard 2007a). On this basis, Howard (2006a) defaulted to his conservative instincts in which it was 'important to keep the challenge of climate change in perspective' and respond with 'prudent risk management' (Howard 2007h).

Non-Securitised Frame	Howard	Rudd/Gillard
General Economic Reference	21	30
Agriculture, Farming, Water, Fish	0	9
Forestry	4	5
Energy and Resources	20	15
Environmental, Sustainability, Development	0	11
Government & Regulatory	10	27
International, Global, Bi-lateral	7	68
General Reference	4	15
Total	66	180

Table 8. Framing of climate issues (non-securitised), Prime Ministers 2003 – 2013.

Frame	Howard	Rudd/Gillard
Opportunity	2	2
Neutral	40	71
Challenge	22	92
Threat	2	15
Total	66	180

Table 9. Language used to frame climate issues (non-securitised), Prime Ministers 2003 – 2013.

These prevailing sentiments were captured in a 2006 speech Howard gave to the Queensland Division of the Liberal Party:

> The point I want to make to you this morning is that [we] must bring a sense of balance to this debate going on in the community about global warming and climate change. We need a sense of balance in relation to this debate. The climate is changing, we do need to reduce greenhouse gas emissions … but we need to avoid the danger of going overboard in the other direction. *We must reject panicky, knee jerk*

reactions that run the risk of hurting our prosperity (Howard 2006c; emphasis added).

Although Howard spoke of a 'balanced', 'measured', 'commonsense', 'sensible' and 'practical' approach, it is clear that he would not pursue emission reductions at the risk of jeopardising Australian industry (or the Australian economy more broadly). As such, the "balance" appeared inarguably in favour of maintaining, exploiting and even expanding, Australia's use of fossil fuels. Status quo interpretations of Australia's national interest was therefore forefront in Howard's calculations:

> [W]e must remember the great contribution that gas and coal and other fossil fuels are making to the prosperity of this country. One of the reasons Australia is doing so well at the moment is that providence has given us these vast natural resources … they [fossil fuels] are fuelling the huge economic growth, the historic expansion of China … Japan and Korea (Howard 2006c).

More directly:

> Clearly a country such as Australia, with its extraordinary supplies of fossil fuels, being the largest coal exporter in [the] world and having large reservoirs of LNG and other energy, clearly Australia is a country that is not going to lightly walk away from the *sensible exploitation of fossil fuels* in a way that increasingly will not contribute to greenhouse gas emissions (Howard 2006f; emphasis added).

Again, in 2007, Howard argued that 'I am not going to embrace an approach to climate change that damages our great resource industries' (Howard 2007f). A 2007 media release by John Howard summed up his approach:

> The Government's priority is to tackle climate change without damaging Australian jobs and living standards (Howard 2007g).

At the heart of this lay a desire to leverage Australia's comparative advantages with a focus on immediate economic growth and full employment:

> [I]t would be a colossal act of self-injury for this country to be panicked into changes in response to climate change that unfairly disadvantaged our great resource industries, robbed those industries of investment and trade opportunities and resulted in the unemployment of many thousands of Australians (Howard 2006c).

Thus, John Howard styled himself as a 'climate change realist' (Howard 2007h) which, for him, meant avoiding 'knee-jerk reactions', the temptation to be 'mesmerised by individual reports' (Howard 2006c) and rather 'looking at the evidence as it emerges and responding with policies that preserve Australia's competitiveness and play to her strengths' (Howard 2007a).

Central to this outlook was a suspicion of UN and European efforts to reduce emissions via the Kyoto Protocol. In this respect, Howard chided the Kyoto Protocol as 'ideological posturing' (Howard 2007e) that set 'arbitrary targets' (Howard 2006e) which 'gave the impression that all you've got to do is put a signature on a bit of paper, and hey presto, the world stops getting warm' (Howard 2006b). Though he often cited the exclusion of major emitting nations the US, China and India as being a major flaw ('we will not ratify something that does not encompass the world's largest emitters' (Howard 2004)), he ultimately framed non-ratification of Kyoto on economic rationalist grounds:

> [T]he whole debate surrounding the Kyoto protocol has been driven out of Europe rather than out of countries whose economic circumstances are similar to our own and we have to be very careful to keep those things in mind … we must make sure that the adjustment that inevitably will have to be undertaken does not occur in a way that puts us at a competitive disadvantage to the rest of the world.
>
> We must be certain that any additional costs borne by our resource industries are also borne by competitor resource industries in other countries, otherwise we are going to lose the competitive advantage

that we now have and that is the reasons why we never ratified the existing Kyoto protocol (Howard 2006c).

The totality of Howard's approach was then brusquely summed up:

> We've made it very clear that we won't ratify the Kyoto agreement – we took that decision some years ago because we feared that ratifying that agreement in the form in which it then and still largely existed could have damaged the comparative advantage of this country enjoyed as a result of fossil fuels … nothing has changed to alter that fact (Howard 2006a).

These views were earlier outlined in the Howard Government's 2004 Energy White Paper, *Securing Australia's Energy Future*. This policy paper placed emphasis on ensuring development of Australia's energy resources, reforming domestic energy markets, improving energy security and energy efficiency while investing (on a proportionally weaker basis) in renewable and clean energy. Although the policy noted climate change as a 'major issue' with the potential to 'raise global temperatures, resulting in deleterious effects to people and the natural world' it also emphasised that Australian greenhouse gas emissions were only 1.6 percent of world emissions and therefore 'too small … to make a difference on its own' (Commonwealth of Australia 2004, 24).[57]

Securing Australia's Energy Future was also indicative of the broader Howard government perspective that climate change was a long-term issue that 'requir[ed] action over a long period, well beyond the normal commercial and political horizons' (Commonwealth of Australia 2004, 140). On Kyoto, *Energy Future* reiterated Howard's view that ratification was 'not in the national interest' since it did not provide a:

---

[57]   *Energy Future* proceeded to fund the balance of 'new initiatives' on promoting the use of fossil fuels. The most significant of these was a $1.5 billion (AUD) 'fuel excise reform' measure that exempt 'all fuels used for off-road for all business purposes' as 'excise free' across 1 Jul 2006 – 1 Jul 2015. Other measures promoting Howard's 'sensible exploitation of fossil fuels' approach included 'incentives for petroleum exploration in frontier offshore areas' and a $500 million low emission technology fund that was ultimately directed to two carbon sequestration projects (Chevron Pty Ltd, $60 million; CS Energy Ltd, $50 million), a 'clean coal demonstration project' (HRL Ltd, $100 million) and a large scale solar concentrator project (Solar Systems, $75 million) (Department of Industry 2011).

[B]asis for long-term effective response as it does not include all the largest emitters in the world, nor does it include a pathway for addressing developing countries whose emissions will soon overtake those of industrialised countries (Commonwealth of Australia 2004, 24).

Emphatically, Howard (2013) rejected a call to adopt a mandatory target of 20 percent of electricity to be sourced from renewables by 2020. Though some measures were taken to support renewable energy initiatives, Howard viewed them as making a 'valuable contribution' but one that 'would never take the place of fossil fuels' (Howard 2006d). Looking toward technological solutions, Howard preferred addressing climate change through development of clean coal technology and via establishment of an Australian nuclear power industry. Put simply, Howard backed technologies that complemented Australia's natural resource advantages, particularly of coal and uranium. Thus, Howard (2006a) argued to 'accelerate the development of clean coal technologies' while articulating the case for nuclear: 'If Australia is serious about addressing climate change it must consider adding nuclear power to its energy mix' (Howard 2007g). He further argued:

> Now we're all against nuclear weapons but to be against nuclear power in 2007 is about as out of date and old in your ideas as one can imagine because if we are ever to fix this problem of climate change, the challenge of it, we need to have all the options open to us (Howard 2007d).

Linking the requirement to maximise Australia's comparative advantage, Howard also noted:

> I believe that Australian attitudes towards nuclear power are changing. Nuclear power is potentially the cleanest and the greenest of them all and we would be foolish from a national interest point of view with our vast reserves of uranium to say that we are not going to consider nuclear power (Howard 2006c).

Surprisingly, despite raising the prospect of an Australian nuclear industry to address climate change, no Howard Government speeches or policies were identified by this research that addressed the potential security or geo-strategic aspects involved in such a move.[58]

The overall picture therefore—until at least 2006—of Howard's approach to climate change was characterised by a self-proclaimed balanced approach but that in substance and rhetoric favoured immediately the fossil fuel industries, advancement of clean coal and nuclear technology options and a rejection of international agreements that may have threatened Australia's comparative advantage. Pervasive throughout this was the belief that any action on climate change must not jeopardise Australia's economy and, above all else, any response must be in the national interest.

This approach changed somewhat from 2006 but particularly across 2007 whereupon Howard announced a number of policies under the broad remit of responding to climate change. The expanded measures to address climate change indicated a general trend that portrayed Howard as viewing climate change as a much more prominent and, on occasion, urgent issue.[59] Thus, although Howard (2006d) 'retained some degree of scepticism … about climate change', a prime ministerial press release in 2007 now heralded that his Government had spent $3.4 billion on the 'climate change challenge' since 1996 (Howard 2007c). He even championed a domestic emissions trading scheme (albeit one that 'protected the export sector' and would 'not have to sacrifice economic prosperity to tackle the problem') as well as various forms of government assistance including a $336 million 'green voucher' investment to help Australian schools install solar hot-water systems, rainwater tanks and 'improve energy and water efficiency' (Howard 2007c). In the international arena, Howard now raised climate change as a 'priority' on the agenda of the 2007 Asia-Pacific Economic Cooperation forum (Australian Bureau of Statistics 2008, 167).

---

[58]   This point may not be 'surprising' if it were the intent of Prime Minister Howard and the nuclear lobby to deliberately disassociate nuclear energy from its security implications (see Han, C. C. 2014. "Demarketing fear: Bring the nuclear issue back to rational discourse." *Energy Policy*, 64:183 – 192).

[59]   These included a domestic 'cap and trade' emissions scheme, the development of an Australian nuclear energy industry as well as numerous climate change partnerships and initiatives (e.g., the Asia-Pacific Partnership on Clean Development and Climate, Global Initiatives on Forests and Climate, Clean Coal Partnership with China and a $336 million initiative in which every school in Australia would be eligible for 'green vouchers' of up to $50,000 to help install solar hot water systems and rainwater tanks).[59] Howard's revised outlook on climate change culminated in the 2007 APEC Summit 'Sydney Declaration' in which he arranged a UNFCCC 'umbrella group' to help establish a new international framework 'beyond Kyoto'.

All this marked a significant, even contradictory, change from his previously held positions. For example, while he now set out to promote an emissions trading scheme, he had once derided: '[I]f Australia is forced to impose a discriminatory impost on carbon emissions … the global environment would be no better – indeed it would be worse – and Australia will have lost out' (Howard 2004). By July 2007 Howard (2007h) even began referring to 'the *threat* of climate change' (emphasis added). His political reframing therefore, was also accompanied by a marked escalation of rhetoric. In a September 2007 press release, Howard (2007b) again noted the 'threat of climate change' and sought a 'new international consensus' on global emissions via the 'Sydney Declaration'.[60] Not to be overstated however, these were the *only* occasions identified by this research were Howard framed climate change as a threat. Notably, however, this research found that Howard never once framed climate change as a *security* threat (Tables 9 and 11).

Many of these initiatives, however, simply reflected his original views as they also clung tightly to Howard's unshakeable principle of not ceding economic advantage. Very likely they also represented a political response to negate the challenge presented by the ascendancy of Labor's Kevin Rudd who, in Howard's view, was 'happy to risk damage to the economy in the pursuit of Green voting preferences' (Howard 2007h). Reflecting on the issue in late 2013, Howard added his government was hit by a 'perfect storm' of events that included long-term drought, release of the *Stern Review*, Al Gore's movie *An Inconvenient Truth* and a prevailing sense amongst Australians that 'we could afford it' (Howard 2013). There was also a healthy degree of political realism. For Howard 'the atmosphere – political that is – was certainly conducive' to increasingly bold responses symptomatic of his political opposition (Howard 2013).

Howard's shift towards a more expanded climate policy response in 2007, however, did not alter his view that climate change remained a long-term issue requiring long-term responses. In total, this research identified seven such references that supported this outlook (see Table 12). The corollary to this was that Howard *never* framed climate change as an urgent or immediate issue. As will be shown, this stood in clear contrast to his successor. Even by late 2007, after Howard had committed vast policy attention to the issue, he only considered

---

[60] Although in his *speech* on the APEC declaration, Howard labelled climate change a 'great challenge'. Thus, in spoken form, this research found Howard only framed climate change as a "threat" on one occasion (during his weekly radio address in July 2007).

climate change *and* energy security as 'priority' issues. Rhetorically, this was as close as Howard came to upgrading the policy urgency of his climate change response that had otherwise 'wallowed at the edges of mainstream public debate' during his term in office (Macintosh, Wilkinson, and Denniss 2010, 200).

The conviction that climate change represented a long-term problem requiring long-term responses probably contributed to Howard never mentioning climate change as a major security issue. This was reflected in the fact that climate change was *not referenced at all* (either as a security issue, risk, challenge or threat) in any one of the major national strategic defence policy documents published during Howard's tenure as prime minister. Of the three major strategic guidance documents examined during this period (*A Defence Update 2003*, *A Defence Update 2005* and *A Defence Update 2007*) all placed and retained prominence on the War on Terrorism accompanying military commitments to Afghanistan and Iraq and proliferation of Weapons of Mass Destruction (WMD). These themes dominated Howard's security agenda throughout his prime ministership and were central to speeches he made relating to Australia's national security.

Although it should not be overstated, the one notable exception to this was the conflation of climate change as an energy security concern. Building on ideas established in the 2004 Energy White Paper, Howard declared climate change and energy security as 'flipsides of the same coin' in which:

> [N]o country that is seeking to expand and lift its living standards is going to forsake the availability of cheap resources and cheap supplies of energy. And equally no country is going to imperil its energy security as part of the process of reducing the negative effects of climate change.

Continuing on in the same speech, he asserted:

> I do want to say something about the related issues of climate change and energy security. And I deliberately link the two of them because you can't think of the reaction of relevant countries to climate change without understanding the importance to them of energy security …

put bluntly, *there is no way that a country is going to embrace climate change measures or responses to the growth of greenhouse gas emissions, which in anyway imperil the energy security of that country* (Howard 2006d; emphasis added).

These sentiments linked strongly to his position on protecting Australia's comparative economic advantage in the resource sector and general unwillingness to impose costs on the Australian populace or promote measures that aroused international energy security concerns. It also provided a strong indication of how Howard had prioritised *climate change measures* in relation to *security measures*.

Beyond this, however, climate change arguably failed to register as a security concern. When compared against his successor, Howard undoubtedly possessed a narrow interpretation of how climate change would affect global, regional, domestic or human security. Table 10, for instance, shows that of the nine coded securitised references found for Howard during this research, all were allocated under concepts of energy security. In contrast, of the 28 securitised references identified under Rudd-Gillard, climate change was coded across *seven* distinct securitised categories that included *global security*, *national security*, *human security*, *biosecurity*, *convergence security* (defined by a multiplicity of cross-cutting issues), *resource security* and as a *new-security* concern.

Securitised Frame	Howard	Rudd/Gillard
Global and Regional Security	0	3
National Security	0	9
Human Security	0	1
Energy Security	9	0
Environmental Security	0	0
Biosecurity	0	1
Convergence	0	2
Resource Security	0	2
Non-Traditional, New Security	0	10
Total	9	28

Table 10. Framing of climate as a security issue, Prime Ministers 2003 – 2013.

Frame	Howard	Rudd/Gillard
Opportunity	0	0
Neutral	6	10
Challenge	3	12
Threat	0	6
Total	9	28

Table 11. Language used to frame climate security issues, Prime Ministers 2003 – 2013.

Prime Ministers Kevin Rudd and Julia Gillard

The consequences for Australia of failing to act … on climate change are severe.

Kevin Rudd (2009)

No nation can accept such threats [from climate change]. We must act. And we will act.

Julia Gillard (2011)

Having examined the speeches of John Howard, the following analysis shifts to examining the prime ministerships of Kevin Rudd and Julia Gillard. This research examined documents (predominately speeches) from the prime ministership of Kevin Rudd from 3 December 2007 and into the prime ministership of Julia Gillard, until April 2013. Although the following passages refer to this period as the Rudd-Gillard era, where required, distinctions are drawn between each Labor prime minister.

Tables 8 and 10 show that Prime Minister Kevin Rudd (and to a lesser extent Julia Gillard) predominately framed climate change as a non-securitised issue (180 non-securitised references against 28 securitised). In a non-securitised context, this research found Rudd-Gillard framed climate change primarily as a global issue, an economic issue and as a domestic regulatory issue.

In one sense, this represented a similarity with Howard in-so-much that climate change was most often addressed in a non-securitised setting. In this instance, similar themes such as the economy, regulation and the prospect of an international agreement dominated the political narrative. Both politicians also spoke of opportunities relating to climate change. Howard spoke of 'maximising opportunities from our response to climate change' that included development of low emissions technologies (somewhat paradoxically, this was particularly

applied to the coal sector) and as a 'regional carbon trading hub' (Howard 2007h). Rudd-Gillard also regularly stressed the opportunities, particularly in relation to developing a clean energy economy, 'I am doing this because I see a great opportunity we can seize. I see a great clean energy future for our great country' (Gillard 2011b).

Beyond this, however, the differences were stark. Howard opposed Kyoto, Rudd and Gillard supported it. While Howard was arguably out-manoeuvred (politically) into supporting an emissions trading scheme, Rudd initially embraced it and a version was legislated by Julia Gillard.[61] Howard did not view climate change as an urgent issue, Rudd and Gillard spoke frequently as though it was an immediate issue requiring swift, resolute action. To bolster their cause, Rudd and Gillard constantly described climate change as a social, moral and economic 'threat' in which Australia was 'on the front line to suffer' (Rudd 2008f). Howard—except on the two occasions identified above—never used such strong language. Whereas Howard was wary of 'individual reports', Rudd and Gillard regularly evoked 'the overwhelming global scientific evidence' (Rudd 2009c) amassed by the world's various institutions and academies. Rudd and Gillard also cast themselves as champions of renewable energy, expanding on Howard policies and implementing a raft of new initiatives (e.g., an expanded renewable energy target, a clean energy initiative and energy efficiency measures).[62] Whereas Howard was overt about offering protection to Australian industry against international action that might threaten its resource advantage, Rudd countered:

> If we allow our actions to be dictated by what we falsely conclude to be in our narrow self-interest, then we harm not just others but ourselves as well because climate change inaction harms us as well (Rudd 2009c).

---

[61]   Prime Minister Howard was arguably out-manoeuvred into supporting an emissions trading scheme in 2007 in response to the rise of Kevin Rudd and his platform of acting on climate change. Howard's language until this moment had indicated that he would not introduce legislation that threatened Australia's resource industries. In his memoirs, Howard noted how he had perceived the public considered the Labor Party as 'more committed to taking decisive action against climate change than was the Coalition'. Thus, for Howard 'I concluded that the Government would need to shift its position on climate change' and following a report by a task-force he announced at a meeting of the federal council of the Liberal Party (3 June 2007) the framework for an Emissions Trading Scheme. This was six months prior to the election date. (see Howard, J. W. 2010, *Lazarus Rising: A Personal and Political Autobiography*, Sydney: Harper Collins, pp. 551 – 552).

[62]   Examples included expanded Renewable Energy Target (20 percent by 2020), the Clean Energy Initiative (including Solar Flagships program to generate 1000 megawatts of solar electricity), and the Energy Efficient Homes package to install ceiling insulation in up to 2.9 million homes. See archived PM website at NLA (http://pandora.nla.gov.au/pan/79983/20100322-1756/www.pm.gov.au/Policy_Priorities/Future/Priorities.html#Climate).

For Rudd, 'the economic cost of inaction on climate change is far greater than the cost of action' and where 'failure to engage with the global community on climate change would exclude us from the chance to shape the global response in ways consistent with our national interest' (Rudd 2008a).[63] This aligned with Rudd's broader strategic idea of Australia as an activist Middle Power in which he believed 'those that share the benefits of these systems must also share the responsibilities of supporting and enhancing them'(Rudd 2008g). Lastly, Rudd and Gillard regularly framed climate change as a threat to security. Apart from associating it under the broad umbrella of energy security, Howard never framed climate change in these terms.

Before examining the security dimension in more detail, it is worth examining the rhetoric deployed by Rudd-Gillard on climate change more broadly. This is important, since it demonstrated how Rudd-Gillard framed climate change in such a manner that then made it politically plausible to present it as a securitised issue to the Australian public. This is significant, since it underlines the *politically constructed nature* of climate change as a security threat. This conclusion tends to debase Paris School ideas which may portray the military as deliberately legitimising (climate) threats for their own advantage (that is, it was the *government* itself who used securitisation to pursue political advantage). As will be shown later in this chapter, in the Australian context, climate change was framed as a security threat first by the politicians and second by the "generals".

On Kyoto, whereas Howard (2006a) viewed it as a 'bit of paper' fashioned to 'accommodate the environmental goals and position of European countries', Kevin Rudd viewed it as a necessary commitment to promoting a rules-based international order. Noting these differences, Rudd signed the Kyoto Protocol 'within minutes of taking office' (Rudd 2008c) and made that the 'first official act of the Government' (Rudd 2008f).

---

[63] This is not to suggest that Rudd did not place the economy at a premium or that he was uninterested in maintaining Australia's natural competitive advantages. Speaking to the US Chamber of Commerce, Rudd declared he was 'committed to responsible economic management and is unashamedly pro-market, pro-business and pro-globalisation'. In arguing for a shift to a low carbon economy, Rudd was also adamant this must done in such a way that 'maintains our competitiveness'.

Prime Minister	Urgent	Short Term	Medium Term	Long-term
Howard	0	1	1	7
Rudd/Gillard	27	0	0	14

Table 12. Temporal framing of climate change John Howard and Rudd-Gillard. John Howard speeches from 2003 – 2007, Kevin Rudd and Julia Gillard from 2007 – 2013.

The urgency to act on climate change defined Labor's political narrative and was constantly referenced in the speeches of Rudd and Gillard. This was born out in the research results in Table 12 where Rudd and Gillard framed climate change as an urgent issue on *twenty-seven distinct occasions*. To create a sense of urgency, Rudd and Gillard portrayed Australia as being particularly vulnerable to climate change, frequently enlisting droughts, cyclones, bush-fires and extreme weather events as part of the causal chain of events. This aspect contrasted with Howard who rather framed these events as enduring features of the Australian landscape akin to Dorothea Mackellar's 1908 poem *My Country*, 'Of droughts and flooding rains' (Mackellar 1908).

Another feature of the Rudd and Gillard rhetoric was to portray climate change as a vast global ('civilisational') threat of unprecedented proportions that demanded an historic response. The following series of quotes capture this narrative:

- 'There is no greater challenge now facing our world and our nations than dangerous climate change. Australia is on the front line to suffer the impacts of climate change', (Prime Minister's website, (Rudd 2008f)).

- 'Climate change is the greatest moral, economic and social challenge of our time', (Address to Kyoto University, (Rudd 2008d)).

- 'Globally, the change that we must achieve over coming decades in response to the climate threat is as great in scale as the Industrial Revolution', (Address to US Chamber of Commerce, (Rudd 2009e)). And,

- 'We can no longer wait afford to wait for action on climate change; the time for action is now', (Doorstop at the United Nations New York, (Rudd 2009g)).

On the destructive vastness of climate change, Rudd envisioned Australia's fate:

> As one of the hottest and driest continents on earth, Australia's environment and economy will be amongst the hardest and fastest hit by climate change if we do not act now.

> The scientific evidence from the CSIRO and other expert bodies have outlined the implications for Australia … temperatures rising by around 5 degrees … 40 percent more drought months … [90 percent] fall in irrigated agricultural production … storm surges and rising sea levels – putting at risk over 700,000 homes and businesses … the risk of land being inundated or eroded by rising sea-levels range from $50 billion to $150 billion … our GDP dropping by two and a half percent (Rudd 2009c).

For Rudd, such a scenario would destroy 'jobs, our houses, our farms, our reefs, our economy and our future' (ibid). Such catastrophist views were never expressed by Howard.

As the political timeframe tightened on an international agreement at the Copenhagen Summit in 2009, Rudd spoke of a 'Grand Bargain' between developed and developing nations that reconciled the 'three great challenges' of binding emissions targets, financing arrangements and diffusion of low-emission technologies (Rudd 2009a). Largely, his domestic success depended on safe passage of the proposed Carbon Pollution Reduction Scheme (CPRS) legislation which, in-and-of-itself, was partly dependent on a successful international outcome at Copenhagen.[64] Thus, as both deadlines loomed, Rudd ratcheted up the rhetoric:

> The latest scientific research on climate change confirms our worst fears. Climate change is happening faster than we previously thought,

---

[64] The CPRS was first voted down by the Senate on 13 August 2009. Rudd sought a number of amendments to the CPRS Bill to garner Coalition Party support prior to seeking reintroducing it again in 2010. For a comprehensive overview of the CPRS policy development see Macintosh et al. 2010.

creating a more *serious threat* to our economy, our environment and

to future generations (Rudd 2009d; emphasis added).

Becoming more desperate, and recognising the 'danger [of] collapsing political momentum towards national and global action on climate change' Rudd (2009c) turned on 'skeptics' and 'political conservatives' who challenged the science and derailed action on his proposed climate policies. In a withering attack some twenty days before the centre-right dominated Australian Senate was to vote on CPRS passage, Rudd raged into full invective during a six thousand word speech at the Lowy Institute:

> This is a profoundly important time for our nation, for our world and
> for our planet. In Australia, we *must* pass our Carbon Pollution
> Reduction Scheme … The truth is this is hard, because climate change
> skeptics, the climate change deniers, the opponents of climate change
> action are active in every country. They are a minority. They are
> powerful. And invariably driven by vested interests. Powerful enough
> to so far block domestic legislation in Australia … to threaten a deal
> on global climate change … holding the world to ransom, provoking
> fear campaigns in every country.

In the same speech, Rudd argued that the failure to act would have 'severe consequences', he upped the rhetoric accordingly and in doing so exposed the political imperative:

> It is time to be totally blunt about the agenda of the climate change
> skeptics in all their colours … It is to destroy the CPRS at home, and
> it is to destroy agreed global action on climate change abroad, and our
> children's fate – and our grandchildren's fate – will lie entirely with
> them … The stakes are that high …
>
> The clock is ticking for the planet, but the climate skeptics simply do
> not care. The vested interests at work are simply too great …
>
> For people who claim to hold the conservative torch, their scepticism
> is in fact radical in its riskiness and recklessness. By deliberately
> undermining and eroding the capacity to achieve both domestic and

international action on climate change the skeptics are attempting to force the world to take the most reckless bet in our long history (Rudd 2009c).

Similar sentiments are recorded in the rhetoric of Julia Gillard. Following the failure by Rudd to pass the CPRS, and preparing to pass a new Clean Energy initiative, Gillard argued:

No nation can accept such threats [from climate change]. We must act. And we will act. The time for words ended yesterday. The time for deeds begins today (Gillard 2011a).

The intensification of language used by Rudd and Gillard to frame climate change is shown by research results at Tables 9 and 10.[65] This shows that when Rudd-Gillard framed climate change as a non-securitised issue they invariably framed it as a *challenge* or *threat* on more than 100 separate occasions across five years. This contrasted sharply with John Howard who framed climate change as a non-securitised *challenge* on just 22 occasions and *threat* just twice over an equivalent time period. Importantly, where Howard *never* framed climate change as a security threat, Rudd and Gillard did so with some regularity. In addition to this, as the Copenhagen conference drew nearer, Rudd increasingly framed climate change as an urgent issue, rather than as a long-term issue (Figure 12).

Moreover, the rhetoric deployed by Rudd and Gillard revealed much about the political spitefulness that had come to characterise the debate in Australia during this period. As noted by the Australian Broadcasting Corporation's lead political program, *7.30*:

[Climate change] has long since dissolved into a toxic political debate. It was a key factor in Malcolm Turnbull losing the Liberal leadership, in Mr Rudd being [elected then] dumped as Prime Minister and replaced by Julia Gillard in 2010 and then in Ms Gillard's removal in June (Sales 2013).

---

[65]   The majority of this analysis was coded by references attributed to Kevin Rudd rather than Julia Gillard.

This 'toxic' political aspect cannot be underestimated, particularly in its effect on the Australian military and broader national security establishment. Moreover, the Australian military has long positioned itself as an *apolitical* institution that avoids political debate.[66] Thus, climate change as a security issue *and* as a political issue presented a conundrum for the Australian military since any articulation on the subject was highly likely to provoke a heavy response from a divided body politic. To maintain its non-partisan (apolitical) position this thesis will show that ADF avoided discussion on the matter and did nothing more than was immediately required of the government of the day. Inherently aware that a change of government (particularly at the 2010 and later 2013 elections) might bring with it a change of policy which would render any major climate policies obsolete.[67]
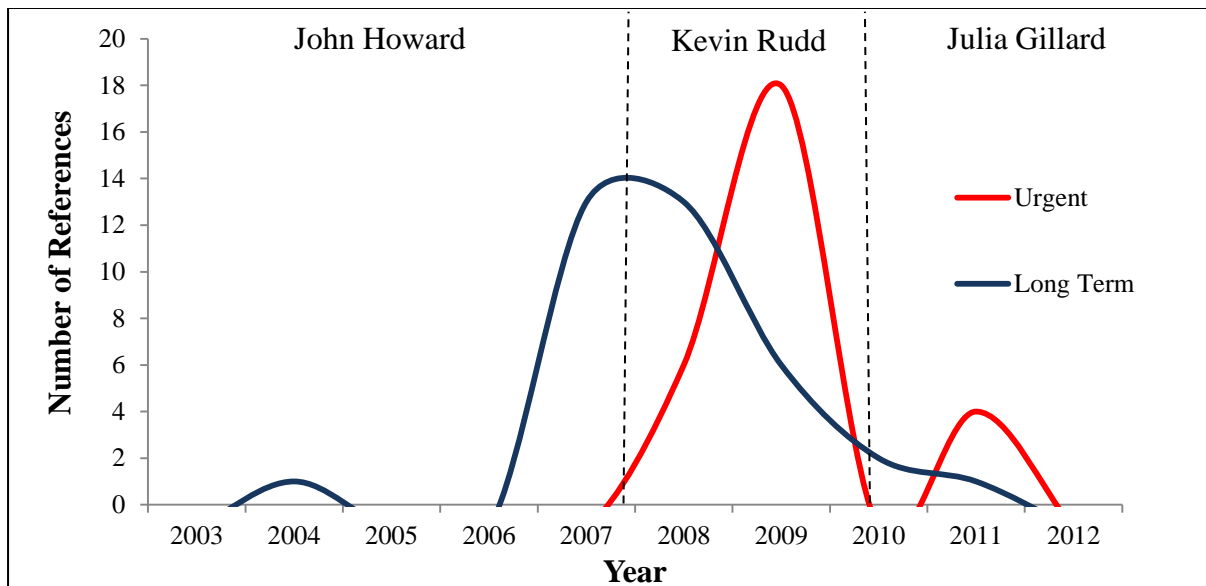
Figure 12. Changing temporal frames of three prime ministers to climate change. During the height of Rudd's climate change agenda (2009), he increasingly framed climate change as an urgent issue (see 'red line' for urgent frame); though not in a security sense. Blue line is climate changed framed as a long-term issue. (Data lines have been smoothed).

Having canvassed the non-securitised dimension of climate change of the Rudd-Gillard era, attention now shifts to examining its securitisation during this period. In short, the significant

---

[66] See the discussion below by the Deputy Secretary of Strategy Michael Pezzullo during Senate Estimates hearing in 2008 who noted Defence 'steer[s] well clear' of political debate on climate change.

[67] Possibly, the military considered it a constitutional obligation to publicly refrain from the issue of climate change. This is an important idea that may partly explain the limited military response on climate change by the Australian military. If truth exists in this proposition, then it has important consequences, particularly if the risks raised by the likes of Rudd and the scientific establishment actually unfold. Moreover, at what point should the military jettison its non-partisan position on climate change? At what point (if ever) do the risks of climate change outweigh the military's democratic and constitutional obligations?

political capital invested by Rudd and Gillard to promote their climate change agenda was accompanied by equal determination to frame climate change as a strategic security threat. With the exception of climate change having some connection to energy security, John Howard never invoked climate change as a security issue.

This research coded 28 securitisation references in the speeches of Rudd-Gillard with a preference to frame it as a new and emerging security issue or as one concerning national security. Most references to climate security were made by Kevin Rudd in 2008 and 2009. As previously noted, Rudd and Gillard cast a wide net, offering up seven distinct security categories in which climate change would impact: *national security*, *global security*, *biosecurity*, *human security*, *resource security*, *non-traditional* security and *convergence security* (multiple / overlaid security concerns resulting from climate change in the one coded reference). Not surprisingly, Rudd and Gillard tended to use evocative language by framing climate change as a security *challenge* or security *threat* (which was used on 18 occasions against 10 neutral references, see Table 11).

Rudd's broad approach to framing climate change as a security issue was evident as early as April 2008. In a speech to the London School of Economics Rudd stated he had met with the prime minister of Great Britain (Gordon Brown) and discussed the security implications of climate change. Expanding on this, Rudd argued:

> Climate change will aggravate existing strains and create new tensions
> within and between states as the supply of natural resources, including
> food and water, becomes increasingly unpredictable. *Climate change*
> *is not just an environmental, economic and moral challenge. It is also*
> *a security challenge* (Rudd 2008b; emphasis added).

Seeking to cast his political opposition as fixated on narrow security agendas (e.g., marked by Howard's fixation on terrorism), Rudd regularly spoke on broadening the national security discourse to include climate change. In the same speech cited above, Rudd made the case:

> A third major international change is the evolution of the concept of
> 'national security'. Clearly the traditional concept of the term endures
> … But the concept has to be broadened to include … non-state actors

… food security, water security and energy security as well as security from threat of health pandemics.

Climate change will lead to changed rainfall patterns and, therefore, to changes in agricultural production that will have an impact on food security. Severe weather events will occur more frequently in some regions, making it more important that nations are ready to respond to natural disasters (Rudd 2008e, 11).

Expanding on the seriousness of the climate threat, Rudd framed it to the Pacific Island Forum as a matter of national survival:

On climate change, we – the leaders of the Pacific Islands Forum – have put out a call to action to other global leaders urgently seeking their support to deal with the threat of climate change.

For so many of my colleagues here on the platform before you, this is not just a matter of importance, it is not just a matter of urgency. *For many of them, it is a matter of national survival.*

The very viability of certain small island states is at stake on the question of how we deal or choose not to deal with climate change (Rudd 2009f; emphasis added).

As someone who placed national security as the 'foremost responsibility of government', Rudd moved quickly to formally assimilate climate change into Australia's national security agenda. During a major speech to Parliament in late 2008 (*The First National Security Statement to the Australian Parliament*), Rudd argued:

[A] new and emerging challenge [that] unless properly dealt with by effective policy action, will have long-term security impacts – locally, regionally or globally. *Over the long-term, climate change represents a most fundamental national security challenge* (Rudd 2008g; emphasis added).

Distancing himself from his political opposition, Rudd argued that climate change had been given less attention than traditional security threats and identified that significant climate change would bring about 'unregulated population movements, declining food production, reductions in arable land, violent weather patterns and resulting catastrophic events'(2008g).

Signalling the domestic national security community, including the ADF, Rudd further argued that such consequences would require formal incorporation into Australia's national security policy and analysis process. This moment represented a marked divergence from Howard era thinking in which climate change was not considered a threat, challenge or issue to Australia's national security. These utterances by Rudd effectively marked the formal incorporation of climate change as a governance issue into Australia's national security agenda and its security institutions. It can be regarded, in some respects, as a signal to the military-bureaucracy that it was henceforth permissible to develop climate policies in accordance with government direction. Material evidence of this shift was the inclusion of climate change within all subsequent major national strategic policy documents from 2008 (including *2009 Defence White Paper*, *2013 National Security Strategy* and the *2013 Defence White Paper*).

Having laid out the basic climate securitisation agenda, Rudd subsequently spoke on the emerging involvement of the Australian military to respond to climate change security threats. In Rudd's view, since '[o]ur defence force lies at the heart of our national security framework' it made sense to graft the military into the climate securitisation agenda (Rudd 2009b). In a 2009 speech to the Australia-Israeli Chamber of Commerce, Rudd argued:

> Increasing security risks associated with climate change, resource security and energy security are likely to exacerbate existing problems in developing states.

> Many countries in our immediate region will be especially vulnerable to rising sea levels, droughts and reduced access to food and energy. Natural disasters, compounded in some cases by the impact of climate change, also pose an increasing demand on our defence and wider national security assets (Rudd 2009b).

Thus, rather than simply being incorporated into 'policy and analysis process', Rudd now envisaged that responding to climate change may, at some stage, require the actual deployment of the ADF.[68] Once again, this represented a profound shift in how climate change had been cast by John Howard.

Notwithstanding this assessment, further nuance becomes evident on closer examination of the coding outcomes. First, Table 12 reveals a paradox: that Rudd-Gillard framed climate change as both an urgent *and* as a long-term issue. Closer scrutiny shows that climate change was mainly framed as an urgent issue in 2008 and 2009 and again in 2011 (Figure 12). In 2008 and 2009 Rudd framed climate change as an urgent and immediate issue on 24 separate occasions (18 of these occurring in 2009). Julia Gillard framed it likewise on four separate occasions in 2011. No other instances of such urgency were recorded in all other years examined. The key insight from this is that climate change was deliberately framed as an urgent issue for the sole purpose of garnering support for the passage of legislation, Rudd's CPRS during 2009 and Gillard's Clean Energy legislation in 2011.

In contrast to this (and apart from the Pacific Island Forum example given earlier), when Rudd and Gillard framed climate change as a securitised issue it was predominately made-out as a *long-term* issue. Rudd (2008g) made this point particularly clear when he stated '[o]ver the long-term, climate change represents a most fundamental national security challenge, over the long run'. The subsequent 2009 Defence White Paper affirmed this when it declared 'the large scale strategic consequences of climate change are, however, not likely to be felt before 2030' (Defence 2009b, 31).

This finding has some significance. It indicated that although Rudd-Gillard invoked climate change as a securitised issue, there was no intent to adopt emergency measures on *security grounds* to deal with the consequences of climate change. Indeed, although Rudd and Gillard spoke forcibly on the urgency and imperative of acting on climate change it is clear that they did not employ anything approaching emergency measures. This applied equally to non-securitised aspects. For Rudd, an *emergency measure* (in a non-securitised sense) may have resembled a decision to pursue a double-dissolution election in early 2010 on the issue of

---

[68]   Further analysis of this aspect in the Defence White Papers is addressed in the following section under MINDEF.

passing the CPRS legislation. That he did not indicated an unwillingness to adopt emergency measures of any sort.

A further point of discussion concerned the motive behind securitisation: if climate change was considered to be a long-term *security* issue by Rudd that would be manifest in twenty-year's time—why bother framing it as a security issue at all? Indeed, was it possible that Rudd could have pursued a strong political climate change agenda (through social and economic policies) without also pursuing climate security agenda?

Four possibilities for this are (briefly) explored. Firstly, attempts by the Rudd-Gillard government to frame climate change as a security matter—and therefore concerning the military—may have been done as a political strategy to bolster public support behind Labor's broader political climate change agenda. The military repeatedly polled as one of the most trusted organisations by the Australian public. In 2011, for example, a survey by the Australian Survey of Social Attitudes (Australian National University) identified 91 percent of respondents having 'a great deal' or 'quite a lot' of confidence in the military (more than 11 percentage points ahead of its nearest rival) (Evans 2012). Drawing the military into the climate change agenda might have been an act to leverage this credibility. Thus, securitising climate change might be viewed as a political strategy that simply intended to further the legitimacy of Labor's approach.

A second reason may be the recognition that militaries are one of the few departments of state that have the actual capacity to conduct long-range strategic planning and where the long-term capability planning cycles actually coincide with the likely onset of climate change (see, for example, discussion below by Deputy Secretary, Michael Pezzullo). On these grounds, Rudd and Gillard might have deliberately acted on an otherwise reluctant military by imposing the issue upon the ADF's strategic planning framework. Moreover, this reason related to a genuine *belief* by Rudd and Gillard that they were acting in the national interest by engaging military planners to deal with the likelihood of climate threats based on the warnings of scientific institutions and the scientific community more broadly.

A third possibility was that climate change fitted neatly into the Rudd Government's broader strategic policy narrative that witnessed a move away from Howard era security (terrorism, WMD, proliferation and expeditionary missions) toward a continental and regionally focused

security architecture (e.g., Asia-Pacific Community) of which humanitarian aid and disaster relief had greater prominence. In this regard, climate change was co-opted as one of many new emerging threats that provided justification for the new strategic approach. Indeed, some argued—as Hans Günter Brauch and Úrsula Oswald Spring observed in 2011—that this new rationale represented the thin edge of climate militarisation wedge to justify larger military budgets. This was also raised by Chinese academic, Dr. Chun Zhang, who arued that 'climate change' (amongst other threats) had been used by the Rudd Government as a means to justify an increased defence spending 'including the ready transmission from the traditional to the non-traditional security field'. Zhang added:

> For the military, however, trouble means opportunity. That's why the 2009 Australian Defence White Paper emphasises various threats … climate change. To justify increased defence spending … troubled times ask for a stronger military force … Or, in other words, they ask for rebuilding of Australian middle power leadership (Zhang 2009, 8).

This point, however, was hard to sustain in the face of evidence. Put simply, despite the rhetoric of Rudd to lift Defence spending to 3 percent real growth and the aspirations of the 2009 Defence White Paper, Australian Defence spending *decreased* as a percentage of gross domestic product across the period 2009 − 2013. By mid-2013, Defence spending was at its lowest point since before World War Two at 1.59 percent of GDP (Thomson 2013, vi).

Less likely, but related to this point, was the possibility that this strategy was chosen since it arguably presented a more *affordable* one and in line with Labor's historical inclination to favour continental/regional national security approaches. In 2011–12, for example, Operation SLIPPER (ADF military contribution in Afghanistan and the wider Middle East) cost $1,221.8 million. By comparison, Operations ASTUTE (East Timor) and ANODE (Solomon Islands) cost roughly six times less at $203.5 million (Watt 2012). It was possible that securitising climate change was a strategy designed to place renewed emphasis on HADR and stability operations that was more affordable, but equally important, it suited Labor's enduring strategic focus on the Asia-Pacific. Although such a cost-saving strategy would have been appreciated following the Global Financial Crisis, it is probably the least likely reason given—at face value—the constant declaration by Rudd (2009b) that 'there is no higher priority than the national security of our country' and his personal inclination towards

more internationalist approaches that diverged somewhat from traditional Labor Party strategic thinking.

The final possibility to securitise climate change by the Labor Party related to geo-politics and the maintenance of a credible military force following the anticipated drawdown in the Middle East. In this context, HADR operations as a consequence of climate change may have represented an attractive strategy since they may have been used as a legitimate means to maintain military readiness, exercise capabilities, improve military-military relations in a non-threatening manner, build partnerships, enhance interoperability and enhance military-civilian relationships. In this context, climate change became another "threat" or "adversary" while HADR operations became the military way of addressing it or contributing to "defeating it". Many ADF leaders had identified the likelihood of a long-peace (or 'peace dividend') following withdrawal from the Middle East. In this sense, a focus on HADR may have been considered a low-cost, politically plausible and military supported means of using an otherwise under-utilised (military) workforce. This may have represented a good outcome for the Australian military establishment since it would always necessitate *some* funding and provide an aspirational future; thereby preventing the type of atrophy, hollowing-out and demoralisation that occurred within the ADF following the last period of sustained combat in Vietnam.[69]

*

Having examined the Rudd-Gillard securitisation, a concluding observation can be made about the timing and frequency with which prime ministers over this period discussed climate change. Figure 13 shows that references to climate change (and global warming) gradually increased through 2006, peaked in 2009 and then declined sharply in 2010 before a final, albeit brief, resurgence in 2011.

This empirical finding matches the general observation that climate change had become an important issue for both Howard and Rudd during the 2007 election campaign and remained so until overtaken by the Global Financial Crisis and then the twin failures of Rudd's CPRS

---

[69] See for instance, speech given by Lieutenant General David Morrison to the Australian Strategic Policy Institute on 11 April 2012 discussing the post-Vietnam malaise and requirement to look to developing Army for future conflict (http://www.army.gov.au/Our-work/Speeches-and-transcripts/Australian-Strategic-Policy-Institute-2012).

legislation and Copenhagen Conference in December 2009.[70] The 2011 resurgence can be explained by Julia Gillard discussing climate change in the light of the Clean Energy legislation.

Further examination of 2009 and 2010 reveals a dramatic change of direction by Kevin Rudd. In the twenty speeches analysed in 2009, Rudd directly referred to *climate change* or *global warming* on more than *220* occasions. In ten speeches he gave in 2010, before being deposed as Prime Minister, Rudd only managed to reference climate change on *fourteen* occasions. The contrast in language was sharp and his new outlook was highlighted by a major speech he gave at the National Security College at the Australian National University. In this speech, Rudd glossed over climate change, referencing it on just two occasions and downgrading its urgency to an 'emerging' one (Rudd 2010a).
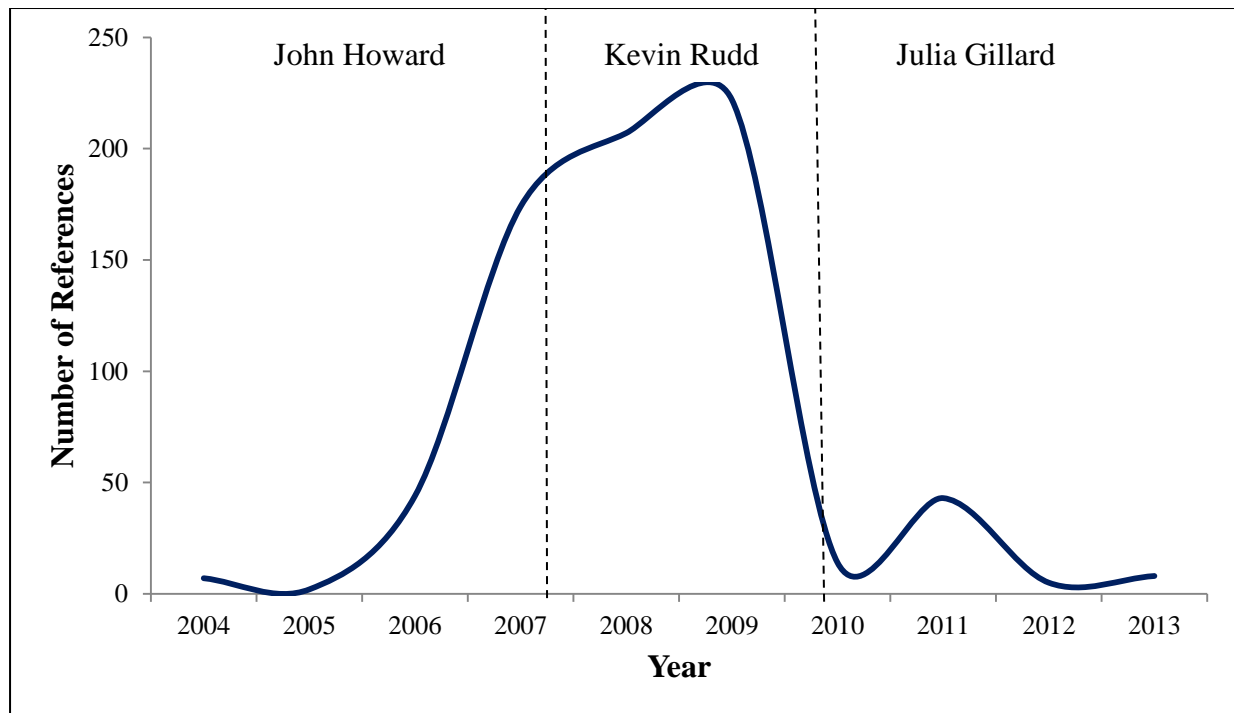
Figure 13. Total references to *climate change* for Australian prime ministers 2003 – 2013. (Note: Graph depicts unfiltered references and therefore covers *all* text including notes, titles, bibliography and front matter).

A corresponding drop-off in securitised references to climate change was also recorded by this research. Figure 14 shows the number of securitised references coded by year for *all*

---

[70]   Lowy Institute polling in 2010 and 2011 shows that climate change ranked third last amongst Australia's 12 foreign policy priorities (down 29 percent since 2007, whence it was considered the most important domestic policy priority) (Wesley 2012) .

Strategic Programs. Again, this result from the political elite, aligns with findings elsewhere that climate change had peaked in (Australia's) public interest around 2008 (Wesley 2012).
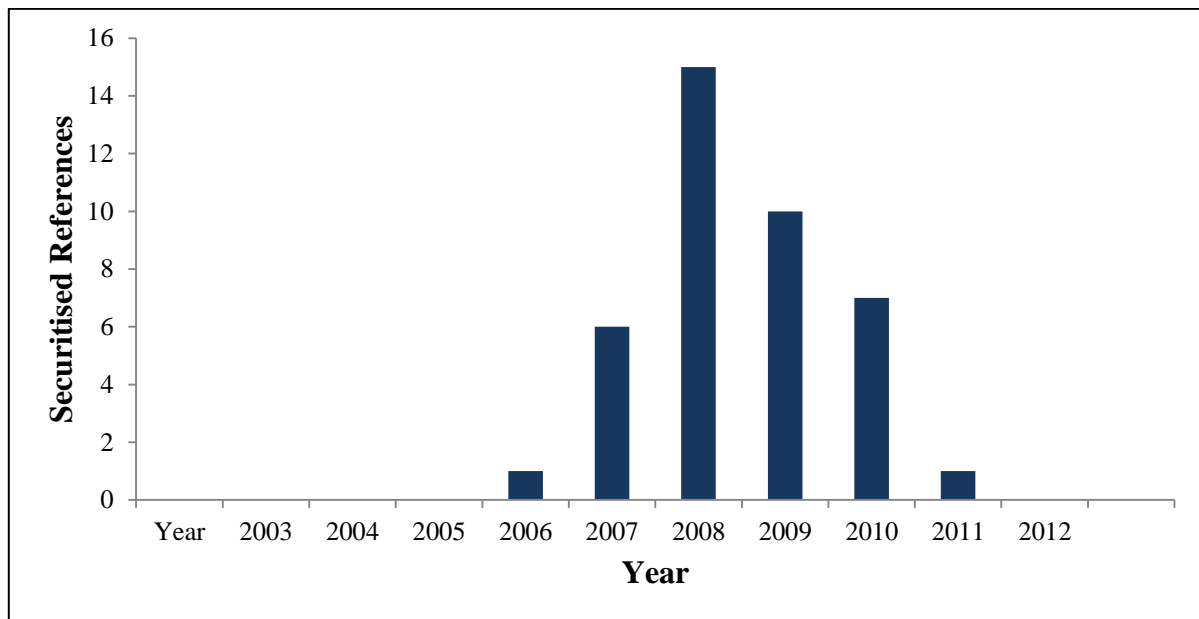
Figure 14. Frequency of *climate change* framed as a security issue, 2003 – 2013 (Note: Data taken from the speeches and policies for *all* Australian Strategic Programs 2003 – 2013).

Minister for Defence

Terrorism … is the defining issue of my generation and that of my children.

Brendan Nelson (2007)

Defence takes its obligations to reduce its greenhouse gas emissions seriously.

Joel Fitzgibbon (2008)

The Minister for Defence (MINDEF) program analysed 186 artefacts of which 28 contained 87 direct references to *climate change*. Table 5 shows that of these 87 references, 27 were coded in a securitised context and 14 were coded into a non-securitised context. In this respect, the MINDEF program framed climate change more often as a security issue than as a non-securitised issue. A list of the MINDEFs examined by this research is at Table 13.

As will be shown, the (overwhelming) majority of securitisation coded references in the MINDEF program are attributable to the Labor MINDEFs from (late) 2007 onwards. That the

MINDEF program made proportionally more securitised references than the Prime Ministerial program can be accounted for by the nature of the Defence portfolio which focuses on security matters rather than broader socio-economic and political matters.

Minister for Defence	Took Office	Left Office	Prime Minister
Robert Hill	26 November 2001	20 January 2006	John W. Howard
Brendan Nelson	20 January 2006	3 December 2007	John W. Howard
Joel Fitzgibbon	3 December 2007	9 June 2009	Kevin M. Rudd
John Faulkner	9 June 2009	24 June 2010	Kevin M. Rudd
Stephen Smith	24 June 2010	27 June 2013	Julia E. Gillard

Table 13. Names and tenure of Defence Ministers examined by this research.

In terms of specific language used during securitised framing, MINDEFs tended to adopt heightened language (*challenge* and *threat* were coded 15 times against *neutral* which was coded 12 times). Similar to the Prime Minister Program, climate change was not framed as an *opportunity* within a securitised context.

The first reference to climate change in a securitised context identified by this research was by Liberal Minister for Defence, Brendan Nelson, on 14 June 2007 in a speech to the Centre for Economic Development of Australia. During this speech Nelson noted that Australia was 'gearing up' for the potential security impacts of climate change over the long-term (2007a). He specifically identified population shifts as a consequence of changes to the climate.

Despite this, the overwhelming focus for the MINDEF under the Howard Government during period 2003 − 2007 remained the threat of terrorism, Weapons of Mass Destruction (WMD) and other traditional security issues. In a speech in August 2007, Nelson maintained this point when he declared terrorism the 'defining security issue for my generation and that of my children' (2007b). Citing that he did not share an uncritical 'apocalyptic view' of climate change, Nelson focused on hard, traditional security threats:

> Many things have happened [since 2005] … the Middle-East and Iraq
> … a resurgent Taliban, the continuing struggle against Terrorism …
> the North Koreans … an ascendant Iran … a coup in Thailand … in
> Fiji (Nelson 2007b).

Empirical evidence of the importance placed on addressing terrorism was reflected in a text search of all examined Liberal Party MINDEF speeches and documents across 2003 until the end of 2007. During this text search, 480 direct references to *terrorism* (and associated words, *terror* and *terrorist*) from 42 separate artefacts were found.[71] This contrasted sharply with references to *climate change* or *global warming* which yielded just four direct references of the 66 speeches and policy documents examined between 2003 and the end of 2007.

Defence Update 2007 was the last major Australian national security policy document (i.e., a Defence White Paper, Defence Update or National Security Strategy) that did not address the security implications of climate change. Rather—and in keeping with the strategic outlook by the Howard Government—*Defence Update 2007* identified the security impacts of globalisation, terrorism, fragile states and WMD proliferation as the primary national security issues. That climate change was not addressed in any major national security documents between 2003 – 2007 reflected Howard's outlook that climate change was *not* a security issue.

As was previously argued, the election of the Rudd Government bought a new focus to climate change. Accordingly, the subject was also taken up by a series of Labor Defence Ministers. This point was reflected in the research results which showed that of the 28 securitised references to climate change attributed to the position of MINDEF, 27 of these were made under Labor MINDEFs from 2008 through 2013 (Joel Fitzgibbon (2007 – 2009), John Faulkner (2009 – 2010) and Stephen Smith (2010 – 2013). In pure quantitative terms, *climate change* or *global warming* was directly referenced 87 times in 25 speeches from Labor MINDEFs from 2008 through 2013 (65 occasions when major policy documents are excluded). Following the prime-ministerial lead, Labor MINDEFs were found to frame climate change as a long-term security threat (Table 14).

	Urgent	Short Term	Medium Term	Long-term
MINDEF	1	0	0	6

Table 14. Research results of temporal framing by MINDEFs 2002 – 2013.

However, in contrast to Rudd's confidence that climate change was a serious threat to security and stability, the initial speeches delivered by the first Labor Defence Minister, Joel

---

[71] Excluding the major policy documents (e.g., Defence Updates), the number of references was 380.

Fitzgibbon, indicated a degree of uncertainty. In a speech to the Brookings Institute, Fitzgibbon (2008c) posed:

> What risks and threats will we face in the emerging strategic environment? Will changes in the planet's climate and environment create new sources of tension and conflict?

To the Shangri-la Conference in Singapore, Fitzgibbon contemplated:

> [W]e can't be sure exactly how climate change will affect security but we know that it will have some impact on our world (Fitzgibbon 2008d).

Recycling previous speeches, Fitzgibbon at the National Press Club again asked: 'Will changes in the planet's climate and environment create new sources of tension and conflict?' (2008b). As a Minister in an electorate (Hunter) encompassing major 'aluminium smelting, coal mining [and] major [coal] power stations', the lack of enthusiasm and critical outlook was understandable (Fitzgibbon 2014). Consequently, this research found that Fitzgibbon spoke little (on the public record at least) and with scant detail on the security implications (or otherwise) of climate change.

Nonetheless, it was Fitzgibbon (in March 2008) that announced the Department of Defence would join *Earth Hour* to improve its energy efficiency as part of Energy Efficiency in Government Operations (EEGO). Fitzgibbon (2008a) further added 'Defence takes its obligations to reduce its greenhouse gas emissions seriously … In addition, a number of Defence bases will be holding Earth Hour events such as tree plantings'. Beyond this, it was the Department—not Fitzgibbon—that developed an internal departmental level *Combat Climate Change* initiative.[72] Placed in perspective (particularly when compared against what occurred in the US military), Fitzgibbon's one page media release that Defence would contribute to *Earth Hour* was more symbolic than meaningful.

---

[72]   Discussed in more detail in ADF Programs (below).

To aid Fitzgibbon and to gauge national opinion on security matters in preparation for the 2009 Defence White Paper, the Rudd Government commissioned a community consultation panel that received 450 written submissions and undertook thirty public meetings across Australia with over 600 people having attended. The final report, *Looking Over the Horizon*: *Australians Consider Defence* provided a more concrete answer to Fitzgibbon's questions:

> [Climate change] *will have* strategic implications including causing
> greater regional instability, pressure upon natural resources, and
> severe weather events in the region (Defence 2008b, 1; emphasis
> added).

Nonetheless, strategic uncertainty regarding the impact of climate change remained a dominant theme in the 2009 Defence White Paper *(Defending Australia in the Asia-Pacific Century: Force 2030)*. Although *Force 2030* was the first of its type in Australian strategic policy history to address the security dimension of climate change it reflected Labor's mixed outlook. Although parts appeared clear, portraying climate change as a 'new security risk … likely to exacerbate already significant population, infrastructure and governance problems in developing countries, straining their capacity to adapt' (Defence 2009b, 31). Other sections were more cautious:

> Uncertainty about the effects of climate change and the period of time
> over which potential impacts may develop makes it difficult to assess
> its strategic consequences (Defence 2009b, 39).

One of the more interesting passages in *Force 2030*, however concerned the manner in which the Government sought to employ the ADF if diplomatic and policy measures failed to curb dangerous climate change. Describing the deleterious consequences of climate change across the region, *Force 2030* argued that Australia's main effort remained 'coordinated international climate change mitigation and economic assistance strategies' (Defence 2009b, 40). But then, in a somewhat ambiguous passage, *Force 2030* declared the ADF a live option:

> Should these and other strategies fail to mitigate the strains resulting
> from climate change, or resource security issues, and they exacerbate
> existing precursors for conflict, the Government would possibly have

to use the ADF as an instrument to deal with any threats inimical to
our interests (Defence 2009b, 40).

Given the sensitivities to nations who are suspicious of the West's action on climate change—particularly concerning the idea of military options to restrict industrial emissions—this passage has remained decidedly overlooked. It is highly dubious however, that the Government ever intended the ADF to be considered as an 'instrument' to 'deal with' the *true* source of climate change: namely industrial emissions of other countries. Perhaps most obviously, and as noted by the British Foreign Secretary Margaret Beckett (2007), 'we are all our own enemies'.

More realistic was the idea that the ADF would need to respond to the security implications of a changing climate in the event that the 'planet's changing climate … gives rise to very old forms of confrontation' thereby precipitating 'stabilisation operations' (Defence 2009b, 40). The other alternative provided was 'more frequent and severe natural disasters and extreme weather' thereby occasioning an increase in ADF deployments for humanitarian and disaster relief (HADR) (Defence 2009b, 40).

Thus, despite the uncertainty and expectation that the strategic consequences would not be felt for decades, *Force 2030* crystallised two major security implications of climate change. Firstly, that climate change may exacerbate the severity and frequency of natural disasters thereby increasing the requirement for humanitarian and disaster relief (HADR) operations. And secondly, that climate change may exacerbate existing precursors to conflict whereby vulnerable states (with limited capacity to respond) may dissolve into violent conflict, thus requiring the ADF to conduct a stabilising intervention.

These facets were reiterated with greater confidence in the 2013 Defence White Paper (*Defending Australia and its National Interests*), stating a direct causal link between the effects of climate change and the increasing demand of both HADR and stabilisation operations:

> The risks associated with resource insecurity may be exacerbated by
> changes in the global climate system. The inundation of low-lying
> regions, more frequent and severe natural disasters and shifts in

rainfall patterns would lead to loss of agricultural production in some areas and potentially large-scale human migration.

The combination of the effects of *climate change and resource pressures will increase the risk of insecurity and conflict*, particularly internal instability in fragile states, many of which have increasingly large populations in areas that will be affected by climate change. *These factors, taken together, point to an increasing demand for humanitarian assistance, disaster relief and stabilisation operations over coming decades* (Defence 2013, 18 - 19; emphasis added).

This was particularly identified to be the case across the South-Pacific. Thus, in *Defending Australia*, the formal Government outlook now shifted to assess that climate change *will* increase the risk of insecurity and conflict thereby affecting an *increase* in HADR and stability operations. This position marked a much clearer and certain assessment than earlier iterations by Rudd, successive Defence Minister's and *Force 2030*. Arguably, when this particular assessment is combined with the *2012 Force Posture Review*—which posited that the second most important force structure determinant is 'contributing to stability and security in the South Pacific and East Timor' (Defence 2009b)—then it is feasible to consider climate change an indirect determinant of ADF force structure and capability planning.

Some evidence to partly support this claim was contained in rhetoric of Labor government ministers who increasingly referred to existing and new capability in the context of its ability to support HADR and stability operations. It was also partly found in the actions of a number of Defence acquisitions that were specifically designed to bolster ADF HADR capability. This came to particular prominence following Cyclone Yasi (February 2011) during which the Royal Australian Navy (RAN) was exposed for an inability to provide sufficient amphibious capability. As a consequence, Labor quickly procured two amphibious vessels specifically 'in support of humanitarian and disaster relief operations domestically and in the region' (Smith 2012).

*

The increased attention on HADR and regional stability operations delineated the Rudd Government from the Howard era dominated by terrorism, WMD and expeditionary military deployments in support of US operations in Afghanistan and Iraq. The difference is evident when comparing the priorities of Defence Update's 2003 and 2005 against the 2009 and 2013 White Papers. While *Defence Update 2005* (2005a, 12) prioritised terrorism, WMD proliferation and declared Australian security interests are 'not defined by geography alone' the 2013 White Paper provided a contemporary account of Professor Paul Dibb's 1986 so-called concentric circles approach by citing 'the defence of Australia [then] the security, stability and cohesion of our immediate neighbourhood [then] the stability of the Indo-Pacific [and lastly] international order' (Defence 2013, 24 - 27).

Furthermore, although both Rudd and Howard placed emphasis on maintenance of a strong US alliance, Rudd possessed a desire for greater activism in regional affairs. This was evident in Rudd's National Security Strategy speech to Parliament where he advanced a 'creative middle power diplomacy' that prioritised the Asia-Pacific ('regional engagement is crucial') through 'strengthening bilateral relationships', 'effective engagement in regional institutions', 'shap[ing] the future of regional architecture' and a policy of '[regional] security policy cooperation' (Rudd 2008g; emphasis in original). In this context, Rudd proposed an Asia-Pacific Community by 2020 as a means of 'strengthening political, economic and security cooperation in the region' (ibid).

Thus, the strategic differentiation between Howard and Rudd may ultimately be mapped to the differing outlooks that have dominated Australia's strategic culture since Federation. Although it is not the intent of this thesis to go into detail on the two competing camps, both are well summarised by Michael Evan's study paper *Tyranny of Dissonance: Australia's Strategic Culture and Way of War 1901 − 2005*. The main point concerning this thesis is that HADR and stability operations were arguably manifestations of a continental and regionally focused strategic doctrine favoured by the Rudd-Gillard governments. Climate change—portrayed as a threat likely to increase homeland and regional humanitarian and stability missions—fitted neatly into this broader strategic narrative. As has been shown, it also fitted neatly with Rudd's broader political narrative.

The groundwork for presenting Labor's differentiated outlook is witnessed in the rhetoric of Labor Ministers describing a *new* approach for military forces expected to execute the

government's revised outlook. The following passages illustrate this through the example of HADR. In a cornerstone speech early in May 2008, Joel Fitzgibbon opined:

> [Defence policy] is more complex and challenging than ever before … the world has changed so much … But the role of military forces is also changing – today, defence forces find themselves participating in a wide range of non-traditional operations, such as disaster relief and stabilisation and reconstruction (Fitzgibbon 2008d).

Fitzgibbon repeated this theme in numerous speeches to regional neighbours. To the US and Japan, 'greater practical cooperation between our government and Defence forces in areas such as humanitarian and disaster relief, peace keeping and maritime security' (Fitzgibbon 2008c). To Indonesia, 'further cooperate in this area through medical training for disaster situations, disaster response management courses, enhanced logistics cooperation and planning toward a bilateral disaster relief exercise' (Fitzgibbon 2008e).

Other Ministers read from the same script. Minister for Defence Science and Personnel (Warren Snowden) highlighted the expanding role of defence forces in which 'Governments are asking their military forces to undertake a new range of missions – such as humanitarian assistance and post-conflict stabilisation' (Snowden 2008). Parliamentary Secretary to the Minister of Defence, Dr Mike Kelly, spoke of Labor's 'new thinking':

> To address the challenges of this contemporary and future international security environment, we must expand our domestic capability beyond individual agency planning and operations to integrate our military, police, political, humanitarian, economic and development goals (Kelly 2008).

In the same speech, Kelly cited the establishment of the Asia-Pacific Civil-Military Centre of Excellence (notably in his own electorate) as a Centre that would focus—amongst other things—on HADR operations. Expanding on this, Kelly even saw the Centre as having direct planning involvement and participation in executing future military operations, 'there will be "dotted lines" from the Centre to Headquarters Joint Operations Command, where they will assist in the development of the ADF operational plans' (Kelly 2008).

Similar rhetoric was also reflected in *Looking Over the Horizon* and, as already noted, the 2009 and 2013 Defence White Papers. *Force 2030*, for instance, identified the security of the South Pacific and East Timor as the second most important national security priority. In doing so, emphasis was placed on the importance of HADR missions:

> After ensuring the defence of Australia from direct attack, the second priority task for the ADF is to contribute to stability and security in the South Pacific and East Timor. This involves conducting military operations, in coalition with others as required, including in relation to protecting our nationals, providing disaster relief and humanitarian assistance, and on occasion by way of stabilisation interventions …
>
> Australia will continue to have particular responsibilities to assist our neighbours in dealing with humanitarian and disaster relief needs, and to support their stability and security. Given our size and resources, Australia will be expected to take a leadership role within the South Pacific if these states are overwhelmed by a natural or man-made crisis (Defence 2009b, 13).

Thus, by political design, HADR increasingly gained a foothold in Australia's national security consciousness through rhetoric (highlighted above) but also through action such as training exercises, doctrinal development, bureaucratic policies and strategic partnerships. The following examples emphasised the strategic *actions*:

- The first desktop regional disaster-relief exercise co-hosted by Indonesia and Australia in May 2008;

- The first field activity for ASEAN Regional Forum (ARF) that witnessed an ADF contingent join other South East Asian, Pacific Island, the US. and other countries in demonstrating disaster relief capabilities;

- Establishment in 2008 of the Asia-Pacific Centre for Civil Military Co-operation with the aim to improve Australia's effectiveness in civil-military collaboration

for conflict and HADR management (administered by the Vice Chief of Defence Force);

- Strategic Partnership Agreement (2009) between the ADF and AUSAID, providing a closer framework for cooperation between the two agencies in recognition of shared strategic interests; and

- Increased international strategic agreements and activities with Asia-Pacific nations in which HADR was emphasised. Examples included: Exercise COOPERATION SPIRIT a HADR activity hosted by the ADF in participation with Chinese People Liberation Army and the New Zealand Defence Force (2012); US – Australian increased cooperation on HADR as instanced by the Regional Leaders Seminar in Cairns (2011) that featured HADR; Defence Cooperation Agreement with Vietnam emphasising HADR (2010).

This design, however, was also reinforced by an apparent upsurge in operational HADR deployments due to natural disasters. Thus, circumstance played its part. Although Labor sought to link these events to the strategic and political narrative of the Rudd-Gillard government many HADR events were not specifically climate related (e.g., volcanoes, earthquakes and tsunami) nevertheless '[i]n an era of climate change, we can only expect the incidence of climate-related natural disasters to increase' (Kelly 2012). Examples of HADR operations, including those caused by non-climatic events, were:

- Increasing regional ADF contingents deployed in support of HADR activities including (since 2008) Operations PNG ASSIST, PADANG ASSIST, SAMOA ASSIST, HAITI ASSIST, PAKISTAN ASSIST II, CHRISTCHURCH ASSIST and PACIFIC ASSIST; and

- Increasing domestic deployments by the ADF in support of (climate change related) disasters. Between 2005 and 2013 the ADF responded to 275 domestic disaster relief missions, some of which (outside conflict and peace deployments) were the largest in its history (ANAO 2014).

HADR therefore became the tangible (practical) dimension of ADF climate response. But despite this assessment, a general observation for the MINDEF portfolio was a distinct *lack* of climate change initiatives instigated by Australian Ministers of Defence between 2003 and 2013. This research, therefore, identified an important gap. The lack of any major programs or policy initiated by the Minister for Defence—such as large scale Defence mitigation or adaptation programs—stood in sharp contrast to those instigated by Australia's two main historical allies, the US and UK militaries.

ADF Executive (Chief of Defence Force and Secretary of Defence)

[Has Defence done any analysis on the security implications of climate change?] No.

Ric Smith, Secretary of Defence (2006)

[On climate change] Defence is the agency of last resort.

Peter Jennings, Deputy Secretary Strategy (2011)

The CDF and SECDEF Program (also identified in this chapter as the ADF Executive) analysed 279 artefacts of which 35 contained 154 references to *climate change*. Table 5 shows that of these 154 references, 11 were coded within a securitised context and 19 were coded within non-securitised context. In this respect, the CDF Program framed climate change predominately as a non-securitised issue than as a securitised one.[73]

Chief of Defence Force	Took Office	Left Office
Peter Cosgrove	4 July 2002	3 July 2005
Angus Houston	4 July 2005	3 July 2011
David Hurley	4 July 2011	30 June 2014

Table 15. Names and tenure of CDF examined by this research.

Defence Secretary	Took Office	Left Office
Ric Smith	11 November 2002	3 December 2006
Nick Warner	3 December 2006	13 August 2009
Ian Watt	13 August 2009	5 September 2011

---

[73]   This research also included some statements from executives other than the CDF and Secretary, namely the Deputy Secretary for Strategy. In this sense, the research describes the ADF Executive to include the CDF, Secretary and Deputy Secretary of Strategy.

| Duncan Lewis | 5 September 2011 | 18 October 2012 |
| Dennis Richardson | 18 October 2012 | Incumbent |

Table 16. Names and tenure of Defence Secretaries examined by this research.

In terms of specific language used during securitised framing, the CDF Program adopted a heightened outlook (*challenge* and *threat* were coded six times against *neutral* which was coded five times). Where climate change was framed in a non-securitised manner, the outlook was significantly more neutral (there were 16 coded references for *neutral* against three for *challenge* and *threat*). Significantly—but perhaps not surprising—climate change was never framed as an *opportunity* within a securitised or non-securitised context.

Several points regarding the CDF and SECDEF Program warrant further discussion. First is the general lack of discussion on climate change by the ADF executive until at least 2007. Evidence of a seeming lack of interest in the subject until this time existed during a 2006 Senate Estimates hearing involving Green's Senator Kerry Nettle and then Secretary of Defence, Ric Smith (Commonwealth of Australia 2006, 70):

> **Senator Nettle**: This is a general question to Defence as to whether you have done any analysis examining the Defence and security implications of climate change?

> **Mr Smith**: Not that I am aware of. I am aware of studies that have been done by consultants that we have seen, but I do not recall that we have done any in-house.

In a subsequent exchange during the same hearing, Smith was adamant that Defence had *not* examined the subject in any detail (Commonwealth of Australia 2006, 88 - 89):

> **Senator NETTLE**: I wanted to go back to your answer before, Mr Smith, when you talked about consultant's reports and check if we were talking about the same consultant's reports in relation to defence and the security implications of climate change.

> **Mr Smith**: I have seen one from the Lowy Institute.

Senator NETTLE: Has there been any defence analysis of that one?

Mr Smith: Let me ask Mr Pezzullo [Deputy Secretary Strategy]. He advises that he is not [sic].

Senator NETTLE: Has Defence commissioned any?

Mr Smith: No.

Senator NETTLE: Has there been any Defence analysis of the Pentagon one, the UN one or the CSIRO one?

Mr Smith: Not that I know of, no.

Senator NETTLE: There is an ONA report as well. Has Defence been involved in that?

Mr Smith: We are aware of the ONA report. We are part of government with them.[74]

Senator NETTLE: All right.

Research results from this thesis arising from the examination of other government documents broadly concur with the Secretary's statement. Excluding the above discussion, between 2003 until 2006 (from the sources examined) there was only *one* direct reference to climate change emanating from a *single* source within the CDF / SECDEF Program (the 2003 *Defence Annual Review*). Put another way, in the years 2004, 2005 and 2006 no sources

---

[74] This research sought the Office of National Assessment (ONA) reports but was informed by ONA through personal correspondence that 'assessments are classified and not subject to release until the closed period of 20 years expires. Additionally, ONA is an exempt agency under the Freedom of Information Act 1982 and is therefore not subject to FOI requests'. Despite the lack of access, an exchange during Senate Estimates in May 2007 revealed that ONA were assessing the security impacts of climate change - of the five reports produced by ONA between January and May 2007 one of these was a major national assessment on climate change.

examined by this research (excepting the above discussion) within the ADF Executive referred to climate change.[75]

This changed in 2007. In total six sources were found that contained 31 direct references to the term *climate change* (unfiltered). Similar numbers were sustained across 2008 through to 2012.[76] Figure 15 shows the number of direct references to *climate change* for the PM Program compared with the ADF Executive. It shows that the ADF Executive began to refer to climate change about one year *after* the PM Program begun to increasingly refer to the issue. This "strategic lag" is interesting, since it suggested that the highest echelons of the ADF (the CDF and Secretary) had seemingly avoided to publicly call-out climate change as a strategic issue of significance for the ADF (or of national security) until well after the prime minister.

This was largely reflected in the cautious tone of the CDF, Air Marshall Angus Houston (2005 – 2011) who stated that climate change was an 'entirely new' challenge (Houston 2007, 57). In 2008, Houston subsequently argued that although climate change posed 'security consequences' they were 'out in the long-term'. Adding that 'a lot more analysis needs to be done before we can come up with firm deductions and conclusions' (Houston quoted in Commonwealth of Australia 2008a, 47). In 2010, Houston again reiterated the long-term outlook, stating '[c]limate change is not expected to have large scale consequences for the strategic environment before 2030 … it is an incremental process' (Houston 2010).

---

[75] Search covered 65 separate sources examined between 2004 and 2006.
[76] This research examined no documents beyond April 2013 and therefore only contained five source artefacts for that year. This contributed to the lack of references in the 2013 CDF Program.
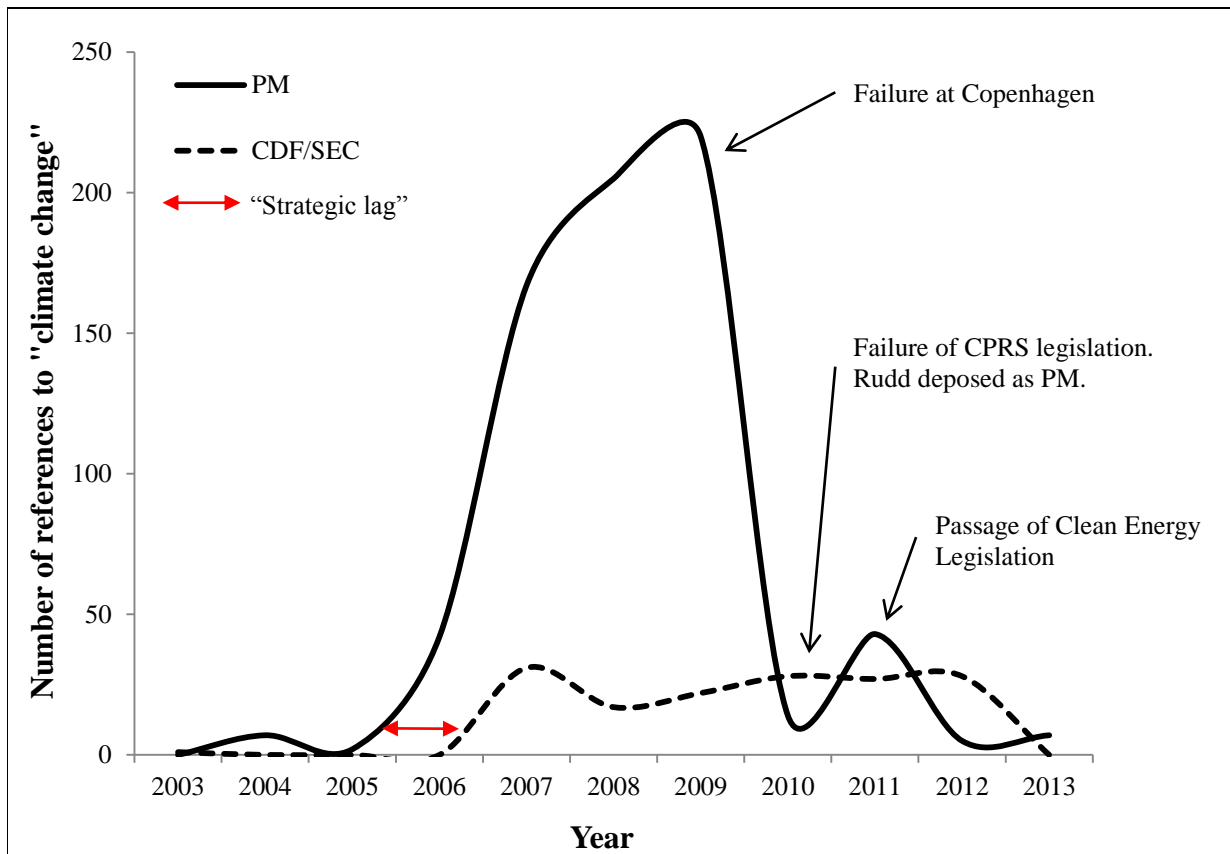
Figure 15. Temporal variation in references to *climate change* by Australian prime ministers and military executive, 2003 – 2013. Solid line denotes references by Prime Ministers (PM). Dashed line denotes references by the military executive (CDF/SEC).

An exchange during the Senate Estimates on 31 May 2007 is particularly instructive on how climate change was framed within the ADF executive. This early assessment set the strategic tone for Defence's climate change response for the years following 2007. In the view of this author it is perhaps the single most important public articulation by a senior Departmental Defence official on the ADF's position concerning climate change.[77]

The exchange occurred between Green's Senator Kerry Nettle and then Deputy Secretary of Strategy, Mr Michael Pezzullo, responsible for developing strategic policy within the ADF (emphasis is used to highlight key aspects). Due to the importance of this statement (and rarity of this kind of well-recorded discussion) the majority of the exchange is included (Commonwealth of Australia 2007a, 101 - 103; emphasis added):

---

[77]   For the purpose of this thesis, the Deputy Secretary Strategy was included in the CDF Program since he works closely with the CDF and Secretary to develop ADF strategy.

Senator NETTLE: [C]ould somebody explain what challenges specifically Defence believes that climate change presents for Defence and therefore what adjustments need to be made to the way Defence operates in order to deal with the challenge of climate change?

Mr Pezzullo: … To answer your question, I need to talk a little bit about our planning process, but I will start by saying that it is not really a question of our beliefs. We will need to conduct some evaluations and assessments in the years to come. I would like to start by referring you to the Director-General of ONA's evidence the other night … that ONA has produced this year five reports – one of which was a major national assessment on climate change ….

He made the point that the strategic implications of climate change in a security sense – I am not talking with respect to the responsibilities of other portfolios; I am here as a senior Defence official – are likely to be felt more over a 40 to 50–year period. That is relevant to us because that is the kind of planning horizon that, although a bit long, is the kind we need to look at in terms of the acquisition of major pieces of equipment, which in some cases have lives of 20, 30 and 40 years. He did indicate that in ONA's judgment the impacts of climate change may not be so material in a security sense in the next two to three years; *it is very much a long-run set of challenges.*

I have given direction to my planning staff to scope in our planning guidance process a series of what the literature would call *non-traditional security threats, of which climate change is one.* There are also issues around water resources, resource depletion – for example, in relation to fisheries – demographic changes, the movements of people across traditional state boundaries, and other issues such as pandemic threats, HIV-AIDS and the rest …

Clearly, the climate change issue is more relevant to the latter part of that planning horizon, as Mr Varghese indicated the other night.

Looking at climate change, we are just starting to scope this in our minds, along with our intelligence colleagues. In due course we will be engaging our capability development colleagues, because that is where the rubber will hit the road. This is going to be a very complex issue to assess, because what you are trying to assess are changes in what is itself a very complex system – namely, global weather – how that is going to interact with the global strategic system, and whether that is going to create strategic contingencies over the next 30, 40 or 50 years where those contingencies would necessitate a change or a set of changes that government would have to consider in the way that they structured the Australian Defence Force. That goes to how we structure the ADF, how we equip it and how we operate it.

If there is evidence to our mind starting to emerge that there will be more conflict over things like water resources, for instance, as and when climate changes – *and I make no judgment about the rate at which the climate might change; there is a very dramatic and active debate going on politically around all of that, so we steer well clear of that* – and we will start to make judgments about the kind of force that we will need to develop beyond the force that we are developing now. I think the implicit judgement or the intuitive judgement that we can make now is that *the climate change factors that the scientists believe are at play will probably not affect the force that is being developed over the current 10–year period, which is our acquisition period of 2007–17.* Beyond that, *we do need to give consideration to those kinds of non-traditional security dynamics in relation to the force that we will develop beyond that period.*[78]

---

[78]   Several important points are revealed by this assessment. First, Defence consider climate change a long-term event where the security implications of climate change will be felt over a 40 to 50 year period. Second, Defence consider climate change a non-traditional security threat that will be compounded by a range of other resource security issues. Third—and most critical—while Defence do not expect climate change to impact on near term capability development (2017) it will be crucial to assess how it might impact future force structure.

This statement outlines the main ADF position on climate change from 2007. Overwhelmingly, the impression was of a Defence organisation that viewed climate change as a long-term, non-traditional security threat that would likely have no impact on Defence operations and force structure in the medium term.[79]

The comment by Pezzullo that Defence avoids commenting on the *rate* of climate change because of the political sensitivities ('we steer well clear of that') also highlighted the challenges of an apolitical organisation attempting to deal with the consequences of a politicised security threat. Arguably, analysis on the *rate* of climate change goes to the heart of what Defence should have provided comment on. For, if Defence (collectively including the military services and intelligence community) were to judge that climate change were increasing in its rate-of-change, then this could have profound consequences for how national security, force structure and capability planning was (and *is*) conceived. It might also be particularly relevant for the broader Australian public who arguably place more trust in assessments by established national institutions than those provided from global institutions such as the UN or of a more partisan nature such as NGOs.

The other inescapable aspect of Pezzullo's comments is the reactionary role envisioned by Defence in relation to climate change. For Pezzullo 'the rubber hits the road' only when Defence was forced to consider capability or force structure implications of climate change in '30, 40 or 50 years'. This is instructive, since it provided no sense of a requirement for proactive Defence planning for the more short-term aspects, including: the possibility of tipping points, mitigation of its own departmental emissions, likelihood of a surge in climate-induced natural disasters (both nationally and regionally) or the impact that legislation (such as carbon pricing) might have on Defence procurement, industry and operations.

This posture was somewhat confirmed in 2011 when then Deputy Secretary of Strategy Peter Jennings noted that the primary effort rested with other government agencies:

---

[79] This author requested a copy of the ONA report (from ONA) via email but was rejected on the grounds of the report's classification. On enquiring whether this report would be made available in the future, ONA replied that such material was exempt from FOI Act 1982 and that it was highly unlikely it would ever be released.

> The lead agency for climate change policy is the Department of Climate Change, and Defence notes other Government agencies like AusAID have the lead in helping societies in our region adapt to and mitigate the effects of climate change. *Defence is the agency of last resort* in this respect (quoted in Alexander 2011, 30; emphasis added).

The final observation on this statement by Pezzullo is that it remained significant since it was *not* made by either the CDF or the Secretary. Indeed, no CDF or Secretary was identified by this research as making such a detailed and lengthy assessment on ADF's outlook concerning climate change.

While Air Marshall Houston spoke of climate change in a general sense, other CDFs were more circumspect. Indeed, of the speeches, articles, interviews and Hansard records examined by this research, Air Marshall Houston was the only CDF between 2003 – 2013 to pass comment on climate change. For CDF General Cosgrove (2002 – 2005) this was perhaps understandable given the low emphasis by the political establishment. But for CDF General David Hurley (2011 – 2014), this was a surprising result (particularly considering the research analysed 72 documents covering his speeches, interviews, written articles and Senate Estimates between 2011 and 2013).

Despite the lack of rhetoric by the various CDFs and Secretary's regarding climate change, incremental change was evident. While the perception of climate change as a long-term security issue remained largely consistent over the period examined (Table 17), other military perceptions of climate change shifted (particularly across the Rudd-Gillard years).

Firstly, whereas climate change was initially viewed as a non-traditional security issue, it came to be framed by the CDF Program also as a global, regional and national security issue. Air Marshall Houston particularly identified the South Pacific as a key region to be affected. In one of his more extensive quotes on the subject, Houston (2010) highlighted 'weak governance, crime and social discord' across the South Pacific that 'will only be exacerbated by climate change'. Houston added:

> With already weak economies and governance, these island nations have little capacity to adapt. The changing rainfall patterns and ocean

dynamics, extreme weather, and rising sea levels that climate change
will bring threaten [sic] the agriculture and fisheries on which the
South Pacific is dependent. From there, it is a small step to political
instability and social disorder (Houston 2010).

Nonetheless, the range of security categories (Table 18) remained markedly less than those
identified by Prime Ministers Rudd and Gillard (Table 10).

	Urgent	Short Term	Medium Term	Long-term
CDF/SECDEF	0	0	0	10

Table 17. Temporal framing by CDF and SECDEF Program, 2003 – 2013.

Securitised Frame	CDF/SECDEF
Global and Regional Security	5
National Security	4
Energy Security	0
Environmental Security	0
Biosecurity	0
Convergence	0
Resource Security	0
Non-traditional / New security	2
Total	11

Table 18. Distribution of securitised categories for CDF and SECDEF Program, 2003 – 2013.

Another facet of the shifting views of climate change held by the CDF and SECDEF Program
was that it would necessitate an increase in the frequency and intensity of HADR operations
(as a consequence of an increase in climate change related natural disasters). This point was
again taken up by Deputy Secretary Strategy, Peter Jennings, in 2011:

Defence is aware that climate change may bring more extreme
weather events that could cause humanitarian crises at home and in
our immediate region (quoted in Alexander 2011, 30)

Jennings further identified rising sea levels and changes in rainfall patterns as placing
additional strains on fragile societies that could lead to conflict. Downplaying the
requirement for new capabilities, Jennings noted that the ADF was already well positioned to

support such operations on account of new amphibious ships, a strategic air-lift ship and helicopter transport aircraft as well as the 'expansion of the land force by two infantry battalions for conducting stabilisation operations' (Jennings quoted in Alexander 2011, 30).

That said, Jennings presented a more detailed account of how Defence had progressively bureaucratised the issue of climate change. In contrast to the *single* branch examining climate change for Defence in 2007, Jennings (by 2011) had identified three distinct areas within Defence responsible for addressing climate change. In this context, Jennings cited Strategic Policy Division as the 'lead in addressing the repercussions for Defence', Infrastructure Division as responsible for managing ADF greenhouse gas emissions and adapting Defence infrastructure and the Commander of Joint Logistics as leading on ADF energy and fuel supply (Jennings quoted in Alexander 2011, 31). Arguably, there was likely to be other areas (such as finance and governance sections) that also dealt with administrative and financial implications resulting from ADF carbon emissions exposed to the Clean Energy legislation of 2011. Another area was Defence procurement agencies, particularly to Defence Materiel Organisation (DMO) (now Capability Acquisition and Sustainment Group). In 2012, for example, small changes were made to the Defence Procurement Guidelines that identified 'environmental sustainability' (including energy efficiency) as a basis for consideration (Defence 2014, 1.2 - 2).

Importantly, Jennings also noted that the strategic impacts of climate change would now be considered as part of annual Defence planning. But he also pointed to very heart of the (Australian) climate security conundrum:

> Defence will continue to monitor developments to ensure our assessments of the future impact of climate change on security *are consistent with Government policy* and the prevailing scientific position (quoted in Alexander 2011, 31; emphasis added).

Once again, this comment highlighted the challenge of apolitical institutions assessing politicised security threats. It exposed the potentially conflicted scenario in which government policy may be incongruent with the scientific position. Put another way, if a new government believed that climate change was *not* a threat (as with the centre-right government of Prime Minister Tony Abbott), but the scientific community assessed that it

was one, then where might this leave Defence assessment? Perhaps more to the point, where might this leave Defence's public position on climate change? Despite such contradictions and challenges, the broader point from these passages is that Defence had made some attempts to render climate change governable as a security issue. It had set about implementing what Rudd had previously described in his 2008 *National Security Statement* by incorporating climate change in both policy and process.

The final evidence of Defence making incremental change was the establishment of a number of climate change related initiatives. While it was not clear if these were initiated by the ADF Executive, since no references were made by the CDF or Secretary in examined artefacts, it was likely they had some knowledge and involvement—more so since it was tendered during a Senate Estimates hearing. In response to a series of questions during Senate Estimates, the ADF described (as at 2012) the major actions it had taken in relation to climate change. These included (Defence 2012, 260 & 261):

- A $2 million study titled *Adaptation and Planning Strategies to Mitigate the Impact of Climate Change Induced Sea Level Rise, Flooding and Erosion at Selected Sites* to identify possible threats to Defence bases and infrastructure from climate change and the impacts of these threats on Defence capability.

- Defence membership of an Inter-Departmental Committee on Climate Change, involvement with the Department of Climate Change and Energy Efficiency local councils and 'other interested parties' to 'instigate a coordinated approach to the effects of climate change on Defence bases'. And,

- Engagement with the clean technology industry to 'create cost effective energy solutions' in Defence projects.[80]

On the one hand, these measures represented a significant change from 2006 when the Secretary appeared oblivious to climate change activities within his Department. On the other, when compared against the US military initiatives they were substantially small scale,

---

[80]   An example of this is the Perth Wave Energy Project providing renewable energy for HMAS Stirling (see, http://www.carnegiewave.com/files/asx-announcements/2013/130618_DoD%20Hands%20Control%20to%20CWE.pdf).

low-key and minimalist responses. For instance, of the 279 artefacts examined under ADF Executive, just one contained a reference to the *Adaptation and Planning Strategies* (a single line-item uncovered in an annex to a Budget Estimates submission).

*

The incremental change by the ADF executive regarding climate change reflected views bought about by a change in government (in 2007). Central to this was that the ADF now had to adapt itself to the new strategic outlook imposed by the Rudd Government. As previously discussed, this entailed a more nuanced approach—not as singularly focused on terrorism and WMD—but informed by a broader definition of national security that included non-traditional security threats. The new requirement was thus framed by then Chief of Defence Force, Angus Houston:

> Traditionally, national security policy making was focused on protecting territory from external attack by other states and promoting our security interests. More recently, national security has become a much broader concept.

In the same speech, Houston surmised the consequence of this new outlook:

> [W]e are no longer dealing with state-on-state conflict. Our focus must also be on other traditional threats that are now seen to impact on the security interests of the nation – such as natural disasters or piracy. Added to this mix are 'non-traditional' threats (Houston 2010).

The fundamental dilemma facing Houston was balancing 'remote but also more consequential' high-end warfighting against the more likely requirement of 'stabilisation, counter-terrorism and disaster-relief operations'. Ultimately, Houston's strategic solution—his reconciliation—was to craft 'a balanced force' over 'the next two decades' with 'acquisitions *currently underway* that will better equip the ADF for security and stabilisation operations' but also replacement of 'existing platforms with more potent options' for high-end warfighting (Houston 2010; emphasis added).

The point to be made here is that Houston did not envisage wholesale changes to ADF force structure or the rapid acquisition of capability to meet new Government priorities, let alone HADR or, even more tenuously, climate change. Rather, Houston largely stuck with a formula he had stated as early as 2007 when he described the need for a 'balanced, networked and deployable [joint] force' capable of both 'low intensity' and 'high-intensity' operations in an 'increasingly complex world' (Houston 2007, 60 & 61).

Section Summary. Regarding the CDF Program, this research is important for what it has *not* found. No major publicly available speeches, directly relating to climate change were made by the CDF or Secretary of Defence in the period examined. Similarly, no major policy initiatives relating to climate change mitigation or adaptation were declared by the ADF executive.

On the contrary, the CDF Program revealed a gradual incorporation of climate change considerations following the election of the Rudd Government in late 2007. Though its responsibility to assess the military implications devolved to discreet areas within the Defence bureaucracy, climate change was consistently regarded as a long range security issue that would most likely increase requirements for Defence humanitarian and disaster relief. In this sense, climate change was not mainstreamed in the ADF and rather considered itself an 'agency of last resort' that was simply 'consistent' with the Rudd-Gillard policy.

6.3   ADF Operational and Tactical Programs

The operational and tactical areas of the ADF are considered the *ways* and *means* that implement national strategic *ends*. This research initially attempted to treat *ways* and *means* separately, however it was apparent that—for the purpose of this research—no genuine distinction was possible. For instance, speeches made by the Service Chiefs were initially considered under Tactical Programs but then some journal articles published by mid-ranking officers were considered under Operational Programs. Although this made sense during the research design phase, it is clearer for the reader to have the combined perspective (synthesis) of the tactical and operational writings. As a consequence the empirical results are mostly represented independently while the written narrative is an integrated account of *ways* and *means*. This enabled a much more fluent account of how the ADF at lower levels—outside of the political realm—responded to, and framed climate change.

Overview

Cumulatively, this research analysed 924 artefacts from operational and tactical areas within the ADF. Artefacts examined included speeches, official Defence newspapers and magazines, journals and Parliamentary Hansard recordings by senior operations spokesmen. Of the 924 documents examined, this research identified 464 direct references (unfiltered) to the term *climate change* in 55 distinct sources. When the documents were analysed for inconsequential references to *climate change* (e.g., in margins, footnotes or otherwise those documents explicitly about climate change), there was 231 direct references to *climate change* from 53 distinct sources. Accounting for this, the research coded a total of 60 passages of text; 36 of which were coded in a securitised frame and 24 as non-securitised frame (Table 19c). Details of the sub-programs and empirical data are footnoted.[81]

---

[81]   Seven separate programs were initially analysed under the functional grouping of Operational Programs. The seven programs (Defence Support Group, Vice Chief of Defence Force, Chief Information Officer Group, Defence People Group, Defence Science and Technology Organisation, Defence Materiel Organisation and Capability Development Group) were responsible for ADF workforce capability, estate management, capability development and acquisition, information communication technology, science and technology advice including capability technical risk assessments and joint training and doctrine. Operational Programs analysed 301 artefacts of which 15 contained 390 direct references to the term 'climate change'. Of these 390 references, only 17 were coded within a securitised context and 20 were coded within a non-securitised context. (This data was heavily skewed by two documents (a 2006 Defence People Group document *Defence Personnel Environmental Scan 2025* and a journal paper for the Centre for Defence and Strategic Studies titled *Climate Change in the Asia-Pacific Region: Security Implications for Australia*). When these documents were removed from the word

Frame	DSG	CIOG	DPG	DSTO	VCDF	CDG	DMO	Total
Securitised	0	0	4	0	13	0	0	17
Non Securitised	4	0	8	1	7	0	0	20
Total	4	0	12	1	20	0	0	37

a. ADF Operational Programs.

Frame	Navy	Army	RAAF	INT	JOC	Total
Securitised	3	12	2	0	2	19
Non Securitised	2	0	0	0	2	4
Total	5	12	2	0	4	23

b. ADF Tactical Programs.

Frame	Total
Securitised	36
Non Securitised	24
Total	60

c. ADF Operational and Tactical, combined.

Table 19. Climate change framing in the ADF (operational and tactical levels).

Before presenting further empirical findings, it is worth commenting on this finding. The outstanding observation, when compared against the Strategic Program, is the reduced number of direct references to the term *climate change*. Moreover, as a proportion of all documents examined, the Strategic Program yielded a quotient of 1.46 (945 references from 646 documents) while the Operational and Tactical Program yielded 0.25 (231 references from 924 documents). Similarly, there was a significant reduction in the number of coded securitised or non-securitised passages. Whereas Strategic Programs contained 76 securitised passages and 285 non-securitised passages, Operational and Tactical Programs contained just 36 securitised and 20 non-securitised. Why was this distinction so pronounced?

search, there were 13 sources containing 157 references. To ensure results were not skewed by the high number of references in these two artefacts, only major conclusions and/or mutually exclusive textual passages were coded). Similarly, five separate programs were analysed under the functional grouping of 'Tactical Programs'. The five programs (Army, Royal Australian Navy, Royal Australian Air Force, Intelligence and Joint Operations Command) were responsible for delivering tactical effects in the 'battle-space'. Tactical Programs analysed 623 artefacts of which 40 sources contained 74 direct references to 'climate change'. Of these 74 references, 19 were coded within a securitised context and four were coded within a non-securitised context.

Four possibilities are identified. The first was the possibility that the operational and tactical levels were simply not focused on climate change (compared with the political-strategic levels) since the threats posed by climate change were long-term (decadal) and were therefore not considered relevant to the operational or tactical planning cycles which act in days, weeks, months and years. In this regard, climate change did not yet "belong" at the operational or tactical levels and was rather framed as a strategic issue. The second reason relates to the nature of military culture. Sensing that it was a politically and military-strategically divisive issue, the lower levels of the ADF may have simply taken their cues from the Minister of Defence, the CDF and Secretary as well as their direct Service Chiefs. Moreover, it rarely featured as a high priority in any of their speeches or policies. Thus, for an organisation renowned for its hierarchal structure and obedience to the "chain of command" the operational and tactical levels were simply "following orders" by refraining from the debate. Pezzullo's remark that 'we steer well clear' of the politics emphasises this point. Linked to this idea is the notion that the lower levels of the ADF are about the implementation of strategic policy rather than its *generation*. Thus, journals, newspapers and speeches at the operational and tactical levels tended to centre on discussion and analysis of issues pertaining to *means* and *ways* rather that *ends*.

A third reason for the reduced attention paid to climate change at the operational and tactical levels relates to one of the limitations of this research method. Put another way, climate change may have been a prominent issue within the lower levels of Defence, but the inability of this research to access classified documents, or documents from a broader cross-section of Defence, precluded a complete assessment. Lastly, it was possible that while the Operational and Tactical levels were concerned about the security and other implications of climate change, they simply lacked the resources, platforms (forums) or executive support to fully consider and discuss its effects.

In terms of language used to frame climate change as a securitised issue, the operational and tactical levels tended to use heightened adjectives (climate change was framed as a *challenge* or *threat* on 20 occasions), Table 20c. Interestingly, climate change was never framed as an *opportunity* by operational-tactical military personnel but was framed by Defence civilians as such (on two occasions by DSTO and the Defence Business Industry Unit, discussed below).

Few occasions were identified by this research in which operational and tactical personnel framed climate change in terms of timing. Of the four instances, three framed climate change as a long-term set of challenges and one framed it as a medium-term challenge. Although this provided only a limited data set, it was consistent with the temporal framing of the ADF Executive.

Frame	DSG	CIOG	DPG	DSTO	VCDF	CDG	DMO	Total
Opportunity	0	0	0	0	0	0	0	0
Neutral	0	0	2	0	2	0	0	4
Challenge	0	0	1	0	4	0	0	5
Threat	0	0	1	0	7	0	0	8
Total	0	0	4	0	13	0	0	17

a. ADF Operational Programs.

Frame	Navy	Army	RAAF	INT	JOC	Total
Opportunity	0	0	0	0	0	0
Neutral	2	9	1	0	0	12
Challenge	1	1	0	0	1	3
Threat	0	2	1	0	1	4
Total	3	12	2	0	2	19

b. ADF Tactical Programs.

Frame	Total
Opportunity	0
Neutral	16
Challenge	8
Threat	12
Total	36

c. ADF Operational and Tactical, combined.

Table 20. Language used to frame climate security in ADF operational/tactical levels.

In terms of security categories, this research found the operational and tactical areas framed climate change as a *global and regional* security issue (11 coded references), a *non-traditional and new* security issue (nine coded references) and as a *convergence* security issue (seven coded references). Climate change as a national security concern had four coded references with a further two security categories receiving some attention. In total, climate change was framed as a security matter across seven different security categories. This

indicated that the operational and tactical areas of the ADF held a wide (broad) perspective on climate security. This differed somewhat from the ADF Executive but was similar to Rudd-Gillard perspective. The following assessment analyses the Operational and Tactical Programs in further detail.

Senior ADF Operational and Tactical Commanders

This research analysed 93 speeches by the three Service Chiefs (Army, Navy and Air Force) between 2003 and 2013.[82] Of the 93 speeches, just *six* contained any reference to climate change. Five of these were by the Chief of Army and one was by the Chief of Navy. All references to climate change by the Service Chiefs occurred from 2007 onwards. Most were delivered as fleeting references under the gambit of it being an emerging security issue and in the context of promoting the security outlook espoused by the 2009 White Paper, *Force 2030.*

Consider, for instance, the 55 speeches and dozen or more articles that were examined by this research and published by the Chief of the Australian Army between 2003 and 2013. The first mention of climate change—found in the sources examined by this research—was by Chief of Army Lieutenant General Peter Leahy in 2007. He cited climate change as one of many contributing factors in driving migration and the creation of 'mega-cities' that portended an increase in operations 'amongst the people' and in 'complex urban terrain' (Leahy 2008: 13 - 14). However, reflecting the focus of the Howard years and Army's ongoing role in Iraq and Afghanistan Leahy 'directed that Army's intellectual resources be focused on COIN [counter-insurgency]' (Leahy 2008, 14). Accordingly, across the totality of his tenure, Leahy's main focus was to develop a 'Hardened and Networked Army' (HNA) and later the 'Enhanced Land force' (ELF) that he cast as a 'decade-long program [to] restructure and re-equip Army for operations in the 21st–century battlespace' (Leahy 2004, 12). Climate change had little to no impact on this restructure and expansion.

---

[82]   While the service chiefs are technically not in the operational chain of command, they undoubtedly influence its direction by virtue of setting the broad "raise, train and sustain" agenda adhered to by each Service on a daily, monthly and annual basis. In this sense, they were considered "operational".

In a 'big-picture environmental scan', the next Chief of Army, Lieutenant General Kenneth Gillespie cast climate change under the 'other [new] area' category and noted the '*potential impacts climate change*' (Gillespie 2008; emphasis added). In a previous role as the Vice Chief of Defence Force, Gillespie had presciently noted concern about the 'combative effect' of climate change but also the 'compliance effect' brought about by potential legislative changes.[83] Beyond these passages, however, no other discussion by General Gillespie on climate change was found by this research. Indeed, in a notable quote, Gillespie articulated the strategic inflection point between the demise of Howard-era security and the rise of Rudd-era security:

> It is an era of ambiguity, in a region in which a number of security issues from piracy, terrorism, water and energy security, to traditional inter-state rivalry are vying for attention (Gillespie 2008).

Ultimately, General Gillespie's outlook—similar to General Leahy—was focused on enhancing Army's capability. Moving on from HNA and ELF, Gillespie implemented the 'Adaptive Army' initiative which he championed, no less, as 'the most significant restructuring of the Australian Army since the implementation of the Hassett reforms in 1973' (Gillespie 2009, 9).

Lieutenant General David Morrison, Chief of Australian Army from 24 July 2011 until 15 May 2015, cited climate change in the context of the military contributing to the preservation of international order and being able to 'effectively manage other risks and threats' (Morrison 2012). Rejecting the idea of a peace dividend following operations in the Middle-East and the near Pacific, Morrison warned of succumbing to the 'insular' outlook pervasive in strategic doctrine between 1976 and 1999. Thus, the focus for Morrison became Plan BEERSHEEBA, a 'vital structural reform' of Army to improve training, force generation and operational rotation. Echoing previous Army chiefs, Morrison (2012) heralded Plan BEERSHEEBA as 'one of the most important developments since 1976 and the beginning of the modern strategic era of Australian strategic policy'.

---

[83]   Under Labor Clean energy Package legislation, estimated effect of a carbon price on Defence in 2012-23 was 'in the order' of $80.4million ('0.32%' of Defence annual budget). See (2012a, Question 111).

In summary, no Australian Service Chief in the speeches and articles examined by this research had outlined the security implications of climate change to any significant degree. Not a single Australian Service Chief (examined by this research) decreed any major responses to climate change, either in terms of adaptation or mitigation. This was largely consistent with the most senior Defence executive (CDF and Secretary) but contrasted somewhat with junior and mid-ranking military officers who periodically contributed ideas and opinions via professional journal articles. Notable also was the absence of any contribution on climate change by the Royal Australian Air Force. Neither the RAAF Service Chief discussed the matter nor was there much evidence that the lower levels of the air force had considered the issue or developed any response.

Opinion pieces on Climate Change by mid-ranking ADF Operational and Tactical Officers

This research analysed 722 official journal articles, newspapers and media releases from the operational and tactical areas of the ADF between 2003 and 2013. These articles offered a unique account of how climate change was perceived and framed at the operational and tactical levels. Journal articles (in particular) were the most productive of these sources from which to gauge military opinion on climate change since they were published in forums designed to stimulate discussion 'free of the constraints inherent in normal staff processes' (Shanahan 2013, 6). This differed from the tightly scripted and controlled speeches and statements by the ADF senior leadership. This facet was somewhat reflected in the research results. Thus, whereas climate change was rarely declared a security threat by senior ADF officers, it was more frequently cited as one by mid-ranking officers. The most prominent example of this was an article (*Climate Change in the Asia-Pacific Region: Security Implications for Australia*) written in 2007 by RAAF Group Captain Rob Lawson and published by the Centre for Defence and Strategic Studies. Citing the 'threats' posed by climate change on eleven separate occasions, Lawson assessed climate change as a 'valid environmental security issue requiring forthright action and prioritisation' (Lawson 2007, 6). Portending the contents of the 2009 Defence White Paper, Lawson added that climate change 'will need to be factored into established national capability and operational planning processes with emphasis on border protection, counter-terrorism and disaster relief' (Lawson 2007, 17).

Lawson's ideas took hold when journal articles began to appear in which climate change was framed as a factor justifying improvements to Defence capability. It was particularly noticeable in Army journals relating to HADR. Writing in the *Australian Army Journal*, Lieutenant Colonel Peter Woodward argued for increased role of the Army Reserve to deal with increased prevalence of natural disasters. For Woodward, '[c]limate change is forecast to increase the incidence of extreme weather events over time. Flow on effects may be water shortages, greater health problems including disease contagion, flooding, coastal erosion and storm surge' (Woodward 2011, 107). Woodward subsequently made eleven recommendations to improve the Army Reserve's HADR response capabilities, including enhanced training and improved integration between ADF and civilian emergency service authorities.

Relatedly, Brigadier Chris Field cited the 'vital role' espoused by the 2009 *White Paper* for the ADF in 'supporting domestic security and emergency response efforts' (Field 2011, 121). Field argued for ten ideas on 'fixing', 'improving' and 'sustaining' ADF HADR capability. Field further identified Defence as a 'national institution with a significant public profile and high degree of community trust', in which he considered domestic disaster relief as being particularly important given the degree of direct interaction with Australian citizens (Field 2011, 121).

In addition to these journal articles, Commander Steven Cole (with the title of "Environment Manager" in Navy Strategic Command) presented alongside US military counterparts at the 2010 *Climate and Energy Symposium* held by The John Hopkins University. In his presentation to the symposium, Cole (2010) forecast a wide number of operational impacts from climate change including base infrastructure impacts (e.g., reduced wharf deck clearances, loss of 'some' coastal facilities, reduced performance of breakwaters) and regional security issues (e.g., 'climate refugees', increased HADR, loss of fisheries). In what was largely found to be an isolated statement, Cole (2010) cited climate change as justification for improving Navy's resilience and capability growth, 'we will need bigger, more seaworthy and more capable ships to cope with projected operational requirements and limitations imposed by climate change'. This was a statement typically *not* found expressed by the senior leaders of the three services.

The broader point from these essays—beyond the merits of their suggestions—is the observation of an emerging discussion taking place regarding the tactical implications of climate change on the ADF. By-and-large they focused on the ADF as a type of "first responder" in the event of a major natural disaster and contrasted with the ADF strategic level that framed it as the agency of "last resort". It also hinted that the operational and tactical levels were more advanced in their thinking on climate change than the senior ADF leadership. Arguably, these might be construed as a form of institutional climate adaptation— where middle-ranking officers begun to scope how the institution must grapple with the coming challenges. On the preceding evidence, this can be viewed as a bottom-up process.

Associated with these ideas was that some military-civilian authors began to directly frame climate change as an opportunity. This was distinct from the executive elements of the ADF, who tended to frame climate change in neutral terms or as a security challenge or threat. A 2010 journal article by Ben White from the Australian Business Defence Industry Unit proposed that a new paradigm was required that set Defence on a path towards becoming more sustainable. Framing it as an opportunity, White called for the establishment of a sustainable national security model consisting of a sustainable defence capability (largely via development of renewable energy options for platforms) supported by a sustainable defence industry. White argued that by establishing this framework, Australia could play a lead role in responding to the effects of climate change and be in a position to develop a world-leading industry capability reaping 'innovation, employment and economic benefits' (White 2010, 87).[84]

Another opportunity was the idea that Defence should seize the moment presented by public and political momentum to contribute to mitigating climate change through improved fuel efficiency standards and practices. The broader picture, however, concerned Defence ensuring its own energy security (particularly in terms of concerns over so called peak-oil and the ability to provide cost effective and reliable supplies in a domestic and deployed environment).

Climate change, however, was only one facet of the energy security debate. Often it was downplayed as a reason to justify new energy measures. Dr Jennifer Palmer (2009, 6) from

---

[84]   Note: Articles by Mr Ben White and Chun Zhang were not coded since they are not ADF members.

Defence Science and Technology Organisation (DSTO) observed that 'shifting public opinion about environmental issues, changing government policy, and the escalating price and shrinking supply of oil' would be a 'key driver' of any future Defence energy requirements. Major Martin White (2008, 12) was more blunt when he argued that 'fossil fuel depletion … is arguably the most pressing problem facing military commanders today'. Despite this, he downplayed environmental (climate change) justification since 'this approach is unlikely to achieve the necessary traction to promote action within the ADF'. In a telling passage, White argued:

> [C]limate change and greenhouse gas emissions are not perceptively pressing concerns [for the ADF] that are physically tangible, and consequently not issues that have been transcribed into [ADF] policy and capability development (White 2008, 12).

This comment reflected the wide sentiment that, although climate change was noted as an *issue*, *challenge* or even a *threat* with the beginnings of institutional adaptation, it arguably lacked a larger and more comprehensive strategy that had the backing of the ADF leadership. Arguably, the lack of ADF leadership on climate change by the ADF executive promoted disinterest at the mid-levels of the organisation since there was little prospect of research or policy initiatives being supported. This was not the case with debate regarding Defence energy security, where the publication of Defence Energy policy (2007) and constant policy emphasis (see below) kept discussion and analysis alive in the various ADF journals.[85]

The overall sentiment of intellectual stultification regarding climate change was captured by Army Land Warfare Studies Centre senior analyst, Dr Albert Palazzo. In an aptly titled 2012 essay, *The Future of War Debate in Australia: Why has there not been one? Has the need for one now arrived?*, Palazzo contrasted debate in the Australian military with those underway in the US military: '[T]he Australian Army has been one of silence' (Palazzo 2012, 1). Particularly relevant for this thesis, Palazzo identified cultural, bureaucratic and operational

---

[85]   See, for example, White, Martin. 2008. "Compelling Requirement to Energy-Proof the Australian Defence Force." *Journal of the Australian Profession of Arms*, no. 175; Palmer, Jennifer. 2009. "Addressing Energy as a Military Cost." *Journal of the Australian Profession of Arms,* no. 178; Gray, Matthew. 2009. "Peak Oil theory: Implications for Australia's strategic outlook and the ADF." *Journal of the Australian Profession of Arms,* no. 180.

impediments in the Australian Army and military more broadly as key reasons for the absence of a (domestic) debate on the future of war, including the security implications of climate change. Coming from a senior civilian "insider" working within the Department of Defence Land Warfare Studies Centre, the assessment by Palazzo offered an acute appreciation. Ultimately, the three reasons he gave provide some insight as to why climate change failed to gain a foothold in the operational and tactical levels of the ADF (Palazzo 2012, 8 - 18):

- **Cultural impediments:** Palazzo described a culture of military anti-intellectualism which favoured 'doers' over 'thinkers' and 'outputs over outcomes'. Consequently, this prevented a conducive environment for the development of challenging ideas and frank debate.

- **Bureaucratic impediments:** Palazzo cited institutional barriers in which the Department of Defence had 'set in place policies that discourage … forums [and] debates'. Rather it was one where 'the institutional preference is to have full control of ideas and messages, particularly if they are unorthodox ones'.

- **Operational impediments.** Palazzo suggested that the 'force's leadership' do not see the requirement to debate the future of war, including climate change. Palazzo further argued that the Australian Army had become a niche contributor—possessing well developed tactical and operational nous—but 'compromised' when required to 'interpret the changing character of war'.

Climate Change in ADF Doctrine

This research analysed 36 articles of non-classified ADF operational and tactical level doctrine. From this analysis, climate change was found to enter formal Australian military doctrine from 2007. This was consistent with analysis of speeches by the ADF executive and senior ADF operational commanders. In total, six separate sources of doctrine were identified as referencing climate change.

The doctrinal publications analysed by this research framed climate change as a global security threat or as an environmental or resource-competition challenge. Apart from one

report (*Scan 2025*) that 'did not represent the views of the Department of Defence', no doctrine identified climate change as a risk to Defence infrastructure, workforce or other fundamental inputs to capability.

The first doctrinal reference to climate change identified by this research occurred in 2007, *Joint Operations For the 21ˢᵗ Century* and in the Navy's *Future Maritime Operating Concept – 2025: Maritime Force Projection and Control* (Defence 2007b, 1) that noted the 'entirely new' security challenge of climate change:

> Other threats to Australia's territorial integrity, sovereignty and broader national interests could also challenge Australia's security in a way that requires the application of military force. Global factors (such as terrorism, pandemic disease, resource depletion and the *security impacts of climate change*) … may affect Australia's security interests, both directly and indirectly.
>
> *Singly, any one of these threats could disrupt the military balance between states* or present non-state actors with an opportunity to challenge state power. Together they shape the new security environment within which the ADF must operate (Defence 2007b, 4 - 5; emphasis added).

Several observations can be made on this statement. First, it indicated that although the ADF executive were not outwardly addressing climate change at this time, the issue was seemingly mature enough to be included within a major capstone doctrinal piece. Although this point should not be overstated, this indicated some dissonance within the ADF between those who considered climate change a threat and those that had simply not considered it an issue. Secondly, the inflated rhetoric (climate change may 'singly … disrupt the military balance between states') appeared incongruent in relation to the actual amount of analysis and discussion occurring within the ADF on climate change as a security concern. Thirdly, the idea that climate change might disrupt the military balance reflected a unique insight into the mindset of Defence strategists who may have conceived of climate change as presenting strategic benefit should a competitor military be degraded as a consequence of climate change. On balance, however, climate change was largely considered one of many future

threats that, in the words of General Gillespie, were simply 'vying for attention' (Gillespie 2008). Thus, apart from the quote identified above, *Joint Operations For the 21st Century* did not expand any further on climate change.

The 2007 *Future Maritime Operating Concept* (FMOC) framed climate change in a slightly different context when it labelled it as an environmental issue that may have longer-term and 'potentially serious repercussions for our region' such as 'submerging smaller islands or archipelagic nations thereby reducing the size of the Exclusive Economic Zone (EEZ) and displacing populations' (Royal Australian Navy 2007, 8). Further, FMOC identified a number of capability implications regarding the requirement for increased ability to respond to 'environmentally driven security and humanitarian issues in urbanised, littoral areas, particularly where infrastructure is poor'. Specifically, the doctrine called for capability 'able to deliver security and assistance capabilities from a sea base … to have to provide mobility, logistic support and hospital services' (Royal Australian Navy 2007, 8). This assessment forecasted the 2009 Defence White Paper in the sense that climate change would equate to an increase in ADF HADR commitments.

Climate change first entered Australian Army doctrine in 2009 *Army's Future Land Operating Concept*. This framed climate change under 'resource competition' and identified it as likely to have 'wide ranging economic and resource impacts on Australian, its region, and globally' (Australian Army 2009, 11). It specifically identified that 'climate change and the rise of sea-levels threatens the long-term viability of some island nations' (Australian Army 2009, 13). Beyond this, the doctrinal focus by Army reflected the capability initiatives and thinking of its various Service chiefs through *Complex Warfighting* (2004) and *Adaptive Campaigning* (2006). Bluntly, climate change was not a key feature in Australian Army's capstone doctrine.

Of interest, no doctrinal reference to climate change was found in those publications examined from the Royal Australian Air Force (RAAF). This was consistent with a general observation that the RAAF generally contributed little if anything to discussion on climate change. Apart from minor references that quoted passages from the 2009 Defence White Paper, no single reference of climate change was found in any Air Force documentation (15

speeches by the Chief of Air Force, 124 official newspapers and nine articles of doctrine).[86] As a broad observation, this correlated with academic literature that—beyond mitigating aircraft greenhouse gas emissions—identified few security or other impacts for Air Forces more generally.

The final article examined by this research within the context of military doctrine was a 2006 publication, *Defence Personnel Environment Scan 2025*. This report was noteworthy for several reasons. Firstly, although it did not represent the official position of Defence, it was the first report by Defence (in any form) that addressed the broader strategic impacts of climate change. It also did this in some detail, dedicating an entire chapter to the science and broader impacts of climate change.[87]

Secondly, *Scan 2025* identified a range of issues beyond immediate security concerns and pointed toward an erosion of the ADF's personnel capability as a consequence of climate change. On this front, *Scan 2025* identified climate change as leading 'to a number of strategic scenarios requiring Defence intervention' (Reich et al. 2006, 240). These included increased requirement to protect the nation from 'physical or warlike threats'; increased requirement to support national and international efforts to deal with 'climate triggered situations' such as natural disasters, environmental refugees and the spread of diseases and pandemics; contributions to enhanced and efficient use of natural resources; and a requirement to develop and train a 'large workforce' to establishing new technologies and associated infrastructure that help address national energy and water needs. In this sense, *Scan 2025* pre-dated much of the US literature that identified climate change as a 'burden multiplier'.

Thirdly, the report was significant for its heightened use of language. This was unusual to any of the official Defence literature examined by this thesis. For instance, *Scan 2025* framed climate change as a pending catastrophe and identified it as 'one of the most serious environmental issues facing Australia and the world' which 'can no longer be ignored by any organisation' (Reich et al. 2006, 223). On the whole, however, *Scan 2025* was an exception.

---

[86]   The only exception to this was the single essay by GPCAPT Robert Lawson identified earlier.

[87]   At the time when *Scan 2025* was written it was also *ahead* of the Lowy Institute publication *Heating Up the Planet* by Dupont and Pearman which similarly addressed the security implications of climate change on Defence.

Furthermore, the point that it was not officially endorsed by the ADF suggested a willingness to distance the institution of Defence from the report's conclusions. This was supported by a source from within the Department of Defence, who observed:

> The point should be made that many climate change 'papers' have not always been published or seen the light of day … it was all 'toned down' … ONA input on climate change was ignored.

> [Regarding Scan 2025] my [manager] wanted the entire Chapter on climate change removed but [a separate manager] said 'no' and ensured it stayed in. I would say this challenged the political reality at the time; one person saw the strategic implications and science and need to raise the issue; *the other saw a risk to political acceptance* (Personal Communication 2013; emphasis added).

This account, coming from within the Department of Defence, supports the broader observation by this thesis of the inherent challenges of an apolitical organisation assessing partisan political security threats. It also resonates with what Albert Palazzo described as 'bureaucratic impediments' in which internal debate was stifled to the point of institutional conformity (though, in this instance, the chapter on climate change was permitted). Nonetheless, this remark also hinted at a paradox: while the political conditions were favourable (under a centre-left Labor government) for Defence to publish on climate change, there appeared a departmental level reluctance to do so.

ADF Operational and Tactical Climate Change Response Measures

Having examined the speeches and journal articles of ADF personnel, this section highlights the major policies enacted by the ADF operational and tactical levels in response to climate change. This was not a straightforward process. Many of the programs initiated by the ADF were related to climate change but were not conspicuously promoted and undertaken on the basis of either adapting to or mitigating climate change. Examples of this included numerous 'energy efficiency', 'greenhouse gas' or 'sustainability' programs. A more complete list of the major ADF environmental related policies and programs between 2003 and 2013 (identified by this research) is at Appendix 2-4. In addition, minor responses

by the ADF are likewise not included (for example the minimal ADF contribution to the Government response to the 2009 House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts, *Managing our Coastal Zone in a Changing Climate: The Time to Act is Now*).

Working on this premise, the research identified *three* main programs and/or initiatives that directly related to (and were conspicuously promoted as) adapting to or mitigating the impact of climate change at the ADF operational and tactical levels. Notably, all occurred *after* the election of the Rudd Government in 2007. These included:

- 2008 – Current. *Combat Climate Change* initiative (Defence Support Group).
- 2011 – Current. *Global Change and Strategic Military Geography Defence Study* (Vice Chief of Defence Force).[88] And;
- 2011 – 2013. *Climate Change Adaptation and Mitigation Study* (Defence Support Group).

A number of other climate change programs were identified but were not able to be considered. For instance, the 2009 *Defence Annual Report* (DAR) promoted an internal circulation of a "Climate Change Discussion Paper" that would inform a "Defence Climate Change and Sustainable Development Strategy" (Defence 2009a, 186). To the awareness of this research, the paper was never developed and remained unpublished. The 2009 DAR also stated that 'Defence continued to implement initiatives in support of the Government's agenda on climate change. This included work to set climate change and sustainability policies and targets for implementation across the Defence estate' (Defence 2009a, 186). By 2010 however, reference to 'climate change' and 'targets' had been dropped in favour of 'the development of resource efficiency strategies and trials or new technologies' (Defence 2010a, 311).

More prominent was the promotion of Defence 'energy management' strategies whereupon the ADF was active in promoting a range of energy and sustainability projects between 2003 and 2013. Although climate change was not promoted as a driving factor for these initiatives it was a related factor and could have been used as justification if the ADF had so desired. A

---

[88]   Now: *Global Change and Energy Sustainability Initiative*.

summary of the programs that was collated by this research from various Defence sources is at Appendix 2-3 (Defence Energy policy) and Appendix 2-4 (an overview of broader ADF environmental policies).[89]

However, the very fact that Defence went to significant lengths to promote itself as a good environmental manager *but then did not significantly include climate change in any part of its overall environmental strategy* appeared incongruent. Certainly, by 2010, climate change could not have been "missed". And yet, in its peak environmental strategy document, *Defence Environmental Strategic Plan*, climate change is directly referenced just twice. On one of these occasions it was done in the context of political necessity, 'Defence must be prepared to implement the *Government's agenda* on … climate change' (Defence 2010b; emphasis added). (As though, climate change was a "Government agenda"). Furthermore, the sense that Defence actively refrained from even using the term *climate change* was evident when the CDF and Secretary otherwise called it 'climate variability' in the plan's introduction. These examples introduce the suggestion that Defence was—by 2010—wary of engaging in climate change discourse on account of the polarised political debate. These themes are returned to in more detail in Chapter eight.

Having made this observation, attention now turns to examining the three main Defence climate change programs. The first, *Combat Climate Change*, was publicly launched by Minister for Defence, Joel Fitzgibbon, in 2008, but appeared (from the press release at least) to emanate from within the Department itself. *Combat Climate Change* was arguably the most visible initiative whose aim was to increase awareness of climate change and ADF greenhouse gas emissions and to inform individuals how they could 'make a difference'. With some flair, the *Combat Climate Change* website proclaimed:

---

[89]   This research identified 14 programs relating to energy efficiency and 45 relating to general environmental issues (e.g., water, sustainability, waste etc). Defence's capstone Environmental Policy was published (approximately) every five years. The policy document examined by this thesis, *The Defence Environmental Strategic Plan 2010 – 2014*, identified six policy objectives that included: implementing best practice approaches to environmental management, integrating sustainable environmental management techniques into Defence business practice, establishing clear lines of accountability, raising 'environmental awareness', measuring environmental performance, maintaining transparency and establishing partnerships. *Defence Environmental Strategic Plan 2010 – 2014*, contained 68 specific 'commitments' with an associated 32 detailed performance metrics (KPIs). The Plan covered seven areas of Defence, including ADF Training and Operations, Defence Capability, Defence logistics, Defence Estate, ICT Procurement, Science and Technology and People Governance

> One of the greatest challenges for the world is to combat and adapt to climate change. Australia's Defence Force aims to do *whatever it can* to halt its contribution to greenhouse gas emissions across its broad range of activities (Defence 2008a; emphasis added)

But this was more rhetoric than reality. Analysis of ADF greenhouse gas emissions since the commencement of this program showed an *increase* (see Figure 16). In addition to this, in 2010 the then Chief of Defence Force confirmed that Defence did not (even) calculate its overall greenhouse gas footprint (domestic and offshore). Asked about this during a 2009 Senate Estimates hearing, the CDF described how Defence was contributing to CO_2 reductions through energy efficiency measures such as optimal cruising speeds for planes and ships, but then conceded 'we do not measure it … I guess that is something that we are going to have to have a close look at in the near future' (Houston quoted in Commonwealth of Australia 2009b, 64).

Furthermore, while many of the goals outlined in the various Defence energy initiatives were admirable, most describe improving energy *intensity* and *efficiency*. Thus, there was no legislative obligation or regulatory requirement for Defence to actually decrease the *quantity* of its emissions footprint. Even more than this, the Government also expressly stated 'there is no policy requirement [for the ADF] to reduce operational fuel consumption' (Commonwealth of Australia 2013a, ii). Given that operational fuels constituted more than 50 percent of all Defence greenhouse gas emissions, the statement that the ADF was doing 'whatever it can' appeared hollow.[90] Lastly, and perhaps most tellingly, was the assertion in the *Defence Energy Management Strategy* (2005b) that stated any measures to improve energy efficiency and reduce energy wastage would only be done so 'within the context of *not compromising Defence capability*' (emphasis added). This was not a surprising announcement, but simply a clear articulation of the relative priority between contributions toward the environmental initiatives against the hard practicalities of national security.

These outcomes are perhaps not surprising when considering the finer details of the *Combat Climate Change* initiative. Moreover—and much like the various Defence energy

---

[90]   See Energy Use in the Australian Government's Operations. Current and previous editions available on internet at: http://ee.ret.gov.au/energy-efficiency/non-residential-buildings/government-buildings/energy-use-australian-governments-operations

management strategies before them—they arguably represented small-scale energy saving initiatives that did not articulate a broader, systemic approach to reducing energy and greenhouse gas emissions across the wider organisation. Simply put, the focus of the program had a short-term outlook with an intent to influence individual behavioural change rather than organisational change regarding energy and resource use.

Consider, for instance the three key areas of *Combat Climate Change* regarding how Defence personnel can 'reduce greenhouse gas emissions' by reducing energy use, waste and vehicle emissions through 'turn[ing] off lights … PC monitors … appliances in breakout and common areas … printers, photocopiers and faxes after use' (Defence 2008a). Other suggestions included car-pooling, printing 'double-sided' and even using a more water efficient shower heads at home since '[w]e're light on for water in Australia so this is a good idea anyway' (Defence 2008a). Other such examples were abundant. Although these initiatives were commendable, they were hardly programs of substance. In addition, there was no accompanying published policy paper other than the single page media release by Joel Fitzgibbon in 2008. Furthermore, no reference to the program was found in any of the hundred or more speeches analysed.
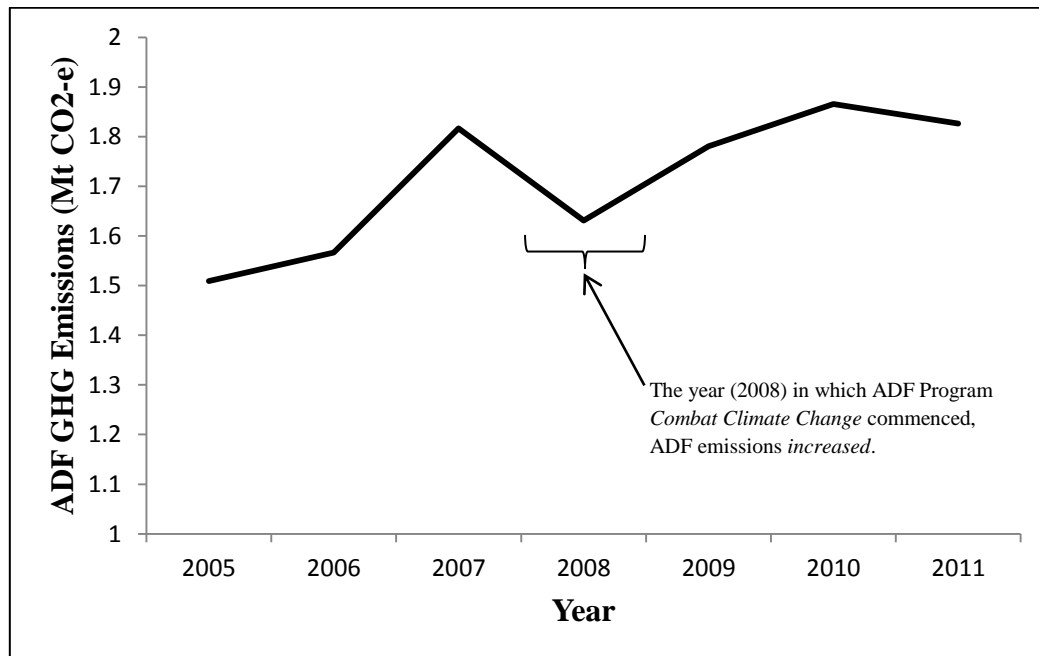
Figure 16. ADF total Greenhouse Gas Emissions 2005 – 2011. Note the increase since the inception of Combat Climate Change initiative in 2008. Data sourced from *Energy Use in the Australian Government's Operations* publications. (Does not include overseas operations).[91]

---

[91]   *Energy Use in the Australian Government Operations* ceased publication from 1 July 2013. Energy data including emissions are thereafter reported by individual agencies (see:

A second ADF climate change response identified by this research was a program administered by the office of the Joint Capability Co-Ordination Division (headed by an Air Vice-Marshall) within the VCDF Group. The program, *Global Change and Energy Sustainability Initiative* (GCESI), recognised that Defence would not be immune from the 'significant new challenges that will affect national security, operating environments, people and budgets more than ever over the coming years' (Defence 2011). Its key goals included 'enhancing organisational situational awareness, increasing the quality of impact assessments, improving energy resilience, strengthening security strategies and identifying current and future challenges for Defence capability' (Defence 2011). Through three projects (forums, "flash-jams" and workshops), GCESI also focused on 'climate variability and associated energy issues' with the aim of assessing the impact of these on ADF preparedness (Defence 2011).

GCESI was notable for three reasons. In the first instance it represented one of the first occasions where Defence had outwardly engaged with broader academic, military, scientific and industrial communities on climate change. Secondly, GCESI sought to treat climate change beyond the security realm and rather examined a range of impacts across capability, policy and operating concepts. Thirdly, GCESI existed at a relatively senior level within the Defence organisation, headed by a two-star officer. Overall, the GCESI project also represented the closest approximation to the 'mainstreaming' of climate change within the Department of Defence.[92]

Despite this, a true assessment of the program's output and effectiveness remained difficult. From the material available via open-source internet, no major policy documents or reform changes were identified as flowing from the GCESI program. Similarly, no indication of the program having major influence was found within the broader military literature examined by this research. On these grounds, GCESI appeared to represent something of a large "scoping study" with climate change embedded within a broader global change framework that examined issues on the longer term strategic horizon.

---

http://www.industry.gov.au/Energy/EnergyEfficiency/Non-residentialBuildings/GovernmentBuildings/EnergyUseOperations/Pages/default.aspx)

[92]   Author spoke at a GCESI seminar on the security implications of climate change for the ADF, 2013.

The third major initiative concerned the *Defence Climate Change Adaptation and Mitigation Study*. This study was considered a more long-term, strategic, approach and was completed in two phases by Defence industry contractors AECOM Australia Pty. Ltd. between 2011 and 2013. Phase One, *Assessment of the Impact of Climate Change Induced Sea Level Change on Significant Defence Bases* was a broad study to identify Defence bases most at risk (Commonwealth of Australia 2012a). Phase Two of this assessment was completed in mid-2013 and specifically examined high risk bases (determined during Phase One). The total cost of both assessments was $2.14 million.[93] Although, both reports were classified RESTRICTED and were therefore out-of-research scope, the very fact that Defence committed funding to the study indicated a genuine willingness to understand potential infrastructure impacts. On the other hand, it was no advancement on what was already occurring across municipal councils, other State and Federal agencies as well as other major Australian industries (Gurran, Hamin, and Norman 2008, Commonwealth of Australia 2009a, Steffen et al. 2009).

Although this analysis focused on describing three main initiatives directly addressing climate change, there were a range of other programs related to climate change that have not been discussed. Many of these programs were aimed at improving Defence energy efficiency and were often promoted by Defence as such. Climate change was rarely cited as a key reason for the establishment of these plans, particularly with regards to *energy* (as above, see Appendix 2-3).

Lastly, two other initiatives by the Defence Science and Technology Organisation (DSTO) warrant comment. The initiatives were important since they again indicated a broadening of Defence's response to climate change beyond the purely security realm. A 2011 Defence Science and Technology Organisation (DSTO) publication, *National Security Science and Innovation Strategy: Annual Statement of Priorities*, identified the development of an extreme environmental indicator tool to predict, mitigate and prepare for extreme environmental events (such as floods, bushfires and cyclones). DSTO linked the development of this tool to four security outcomes including the improved ability to predict extreme events, enhancing ability of first responders and improving community and critical infrastructure resilience. The prediction tool was one of six priorities and arguably represents

---

[93] For total cost of this contract see both (2012a) and (2012b).

DSTO's contribution toward implementing the Rudd-Gillard Government priority on addressing climate change.

The second was found in a DSTO publication, *Australian Defence Scientist* that stated 'because of the growing prominence of climate change as an issue for the Australian Government … Defence is placing greater emphasis on fuel efficiency' (DSTO 2008, 4). As such, DSTO identified a number of initiatives to improve Defence energy use that included improved techniques that reduced bio-fouling thereby reducing drag and improving fuel efficiency on ships. Many ADF journal articles focused on improving Defence energy security (through energy efficiency, renewable energy programs and inculcating fully burdened cost of fuel).

Section summary. The ADF instigated a number of initiatives that ranged from adaptation (e.g., *Climate Change Adaptation Strategy*) to mitigation (*Combat Climate Change*). However, the vast majority of initiatives that could have been rendered part of the ADF response to climate change were not promoted as such. Rather, the majority were framed as energy efficiency and sustainability measures. The overall impression of the ADF climate change programs therefore was one of limited organisational penetration and breadth. Even GCESI, which existed with the endorsement of relatively senior leaders within the ADF, was really an information-scoping initiative rather than a major effort to mainstream climate change via reformation of ADF policies, practices and doctrine. In the absence of conspicuous support by the most senior leaders within the ADF there emerged a number of "island" initiatives within the bureaucratic structures of Defence; each with similar objectives but isolated for want of a coherent strategic plan from which a common picture could emerge. Seemingly, the ADF had considered the development of such a plan in 2010 but—tempered by the emergence of a federal opposition that stridently opposed the then Labor Government's suite of climate policies—it remained unpublished.

Appendix to Chapter Six

Appendix 2: ADF Case Study Supplementary Information

2-1   Case Study method, additional content.

2-2   Summary of ADF Case Study findings.

2-3   ADF Energy Policy.

2-4   Summary of ADF Climate Change, Environmental, Energy and GHG Reduction
       Programs, 2003 – 2013.

Chapter 7: Climate Securitisation in the US Political and Military Sector

7.1   Introduction

This case study examines how the US Navy and selected areas of the US political establishment responded to climate change through the prism of securitisation theory between 2003 and 2013. In total, this case study examined 2,093 documents that consisted mostly of speech-acts but also included media publications, journal articles, military doctrine and departmental policy. In a similar fashion to the Australian case study, the research boundaries for this study were grouped into three separate areas: strategic, operational and tactical. Table 21 shows how the case study was structured and also annotates how many documents, by type, were examined for each area.

The strategic levels for this case study included examination of documents from the President, the Secretary of Defense (SECDEF) and the Chairmen of the Joint Chiefs of Staff (CJCS). The operational and tactical levels are largely combined in this case study and included examination of program areas from the Secretary of the Navy (SECNAV), the Chief of Naval Operations (CNO), and—on a somewhat limited basis—US Navy Oceanographer and the Commander of the Pacific Fleet.

Consistent with the previous chapter, this case study is presented in two main sections. Section 7.2 provides the results and discussion of the US Strategic Programs while Section 7.3 provides the results and discussion of the operational and tactical level programs. Supplementary to the specific findings derived from the content analysis (coding) is an expanded discussion and analysis of selected speeches and policies. The aim of this was to build upon the content analysis and to provide context to the particular research outcomes. On this basis, the discussion also provides an overall narrative of how the US political-military establishment responded to the security implications of climate change between 2003 – 2013. Further description of the method for this case study is included at Appendix 3-1. For ease of presentation, only the data and outcomes considered important for this thesis have been included in this chapter.

	Program	Document Type					Total
		SPR	DTN	S&A	MDA	JNP	
Strategic	President	2	0	107	82	0	191
	Secretary of Defence	4	0	807	0	0	811
	Chairman of Joint Chiefs	2	0	609	0	20	631
							(1633)
Tactical	Secretary of the Navy	0	0	214	0	0	214
	Chief of Naval Operations	3	4	191	2	1	201
	US Oceanographer	0	0	5	0	2	7
	Commander of Pacific Fleet	0	0	38	0	0	38
							(460)
	Total	11	4	1971	84	23	2093

Table 21. US Case Study: Sources, domains and numbers of documents examined. Strategic and Operational represent the two different domains of national security. Each domain consisted of various programs from where each document originated. (Document Type: SPR = Strategic Policy, DTN = Doctrine, S&A = Speeches and Announcements, MDA = Media, JNP = Journals, Newspapers and Other publications).

7.2 US Strategic Programs

Three separate programs were analysed under the functional grouping of Strategic Programs (President, SECDEF and the CJCS). These areas are widely recognised as central decision makers and securitising actors responsible for US strategic direction and national military strategy. Combining them is useful in identifying major trends on climate change across the higher levels of US strategic policy. Individual results and analysis for each of the Strategic Programs is subsequently presented.

A word search for *climate change* within all 1,636 artefacts in the Strategic Programs returned 77 separate sources containing 185 direct references (filtered).[94] Of these 185 direct references, 119 were coded. 33 of these (roughly 30 percent) were coded as securitised references while the remaining 86 (70 percent) were coded as non-securitised (Table 22).[95] At

---

[94]   "Filtered" is a term used in this case study to describe search results that have removed extraneous references to the term 'climate change' included in footnotes, endnotes, headings, margins and other inconsequential areas of publications. 'Unfiltered' includes all publication content.

[95]   Non-securitised references consist of "Other Context" and "Defence Context".

the broadest level, it was found that climate change was predominately framed as a non-securitised issue by US strategic actors.

	Strategic Programs			
Frame	President	SECDEF	CJCS	Total
Securitised	14	11	8	33
Non Securitised	74	4	8	86
Total	88	15	16	119

Table 22. Climate change framing in US strategic programs, 2003 – 2013.

In order to provide context against other important strategic issues, a search of specific words/phrases was conducted for all available strategic artefacts. Figure 17, for instance, shows how *climate change* compared in frequency against *terrorism* (and its derivatives *terror*, *terrorist*, *counter-terrorism* and *counter-terrorist*). A search of all 1,636 documents in US Strategic Programs revealed a total of 4,342 references across 796 different sources (unfiltered). To put this in perspective, of the programs analysed, approximately half of all artefacts contained some kind of reference to terrorism across the period 2003 – 2013. This clearly shows that climate change was discussed relatively infrequently against one of the more recent defining issues of US strategic policy.
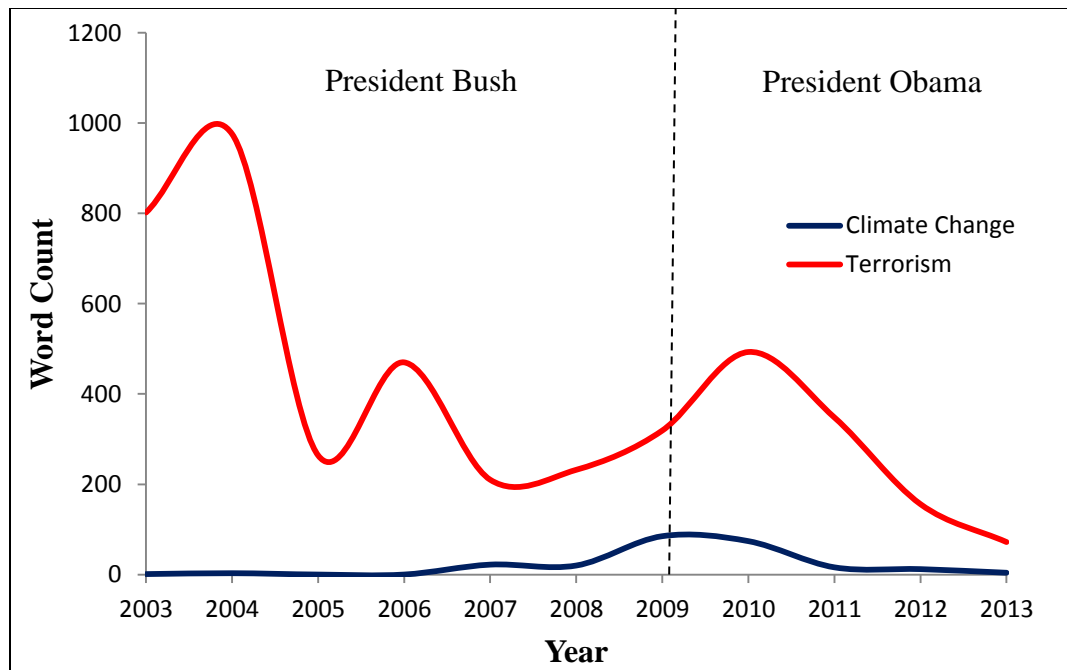
Figure 17. Frequency of *climate change* versus *terrorism* in US Strategic Programs.

The most common securitised categories for US Strategic Programs are shown at Figure 18. This indicates that when climate change was framed as a security issue within the Strategic Programs, it was predominately done so (in descending order) as an energy security issue, a global security issue and as convergence/multiple security issue and—what this called—an "Arctic security" issue. Table 23 shows that when climate change was framed as a security issue it was done so in a neutral manner but tending toward robust language by presenting it as a challenge or threat. Two passages of text were coded as framing climate security opportunities. These aspects are further analysed under Presidential program.
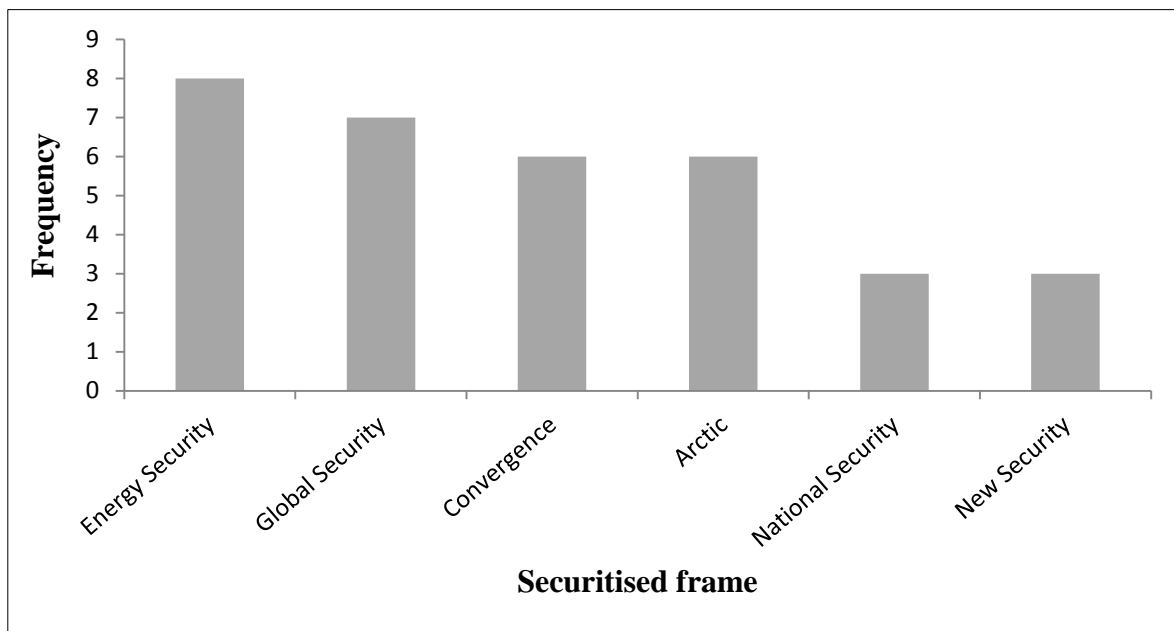
Figure 18. Contextual framing of climate issues (securitised), strategic level (US).

Frame	President	SECDEF	CJCS	Total
Opportunity	2	0	0	2
Neutral	4	6	4	14
Challenge	3	2	4	9
Threat	5	3	0	8
Total	14	11	8	33

Table 23. Language used to frame climate security issues, strategic levels (US).

The most common non-securitised categories for Strategic Programs (aggregated) are shown at Figure 19. This indicates that when climate change was framed as a non-securitised issue within Strategic Programs it was done so dominantly as (1) a global/international issue; and (2) as an energy issue. Thereafter, climate change was framed across a range of categories

including economic and regulatory issue. Table 24 shows the specific language used to frame non-securitised references for all Strategic Programs. In this context, climate change was predominately framed in a neutral manner. Negative framing (i.e., as a *challenge* or *threat*) were coded on 26 separate occasions. Climate change as an *opportunity* was coded on 12 separate occasions. In keeping with the format of the case studies, the following sections analyse each of the US Strategic Programs in greater detail.
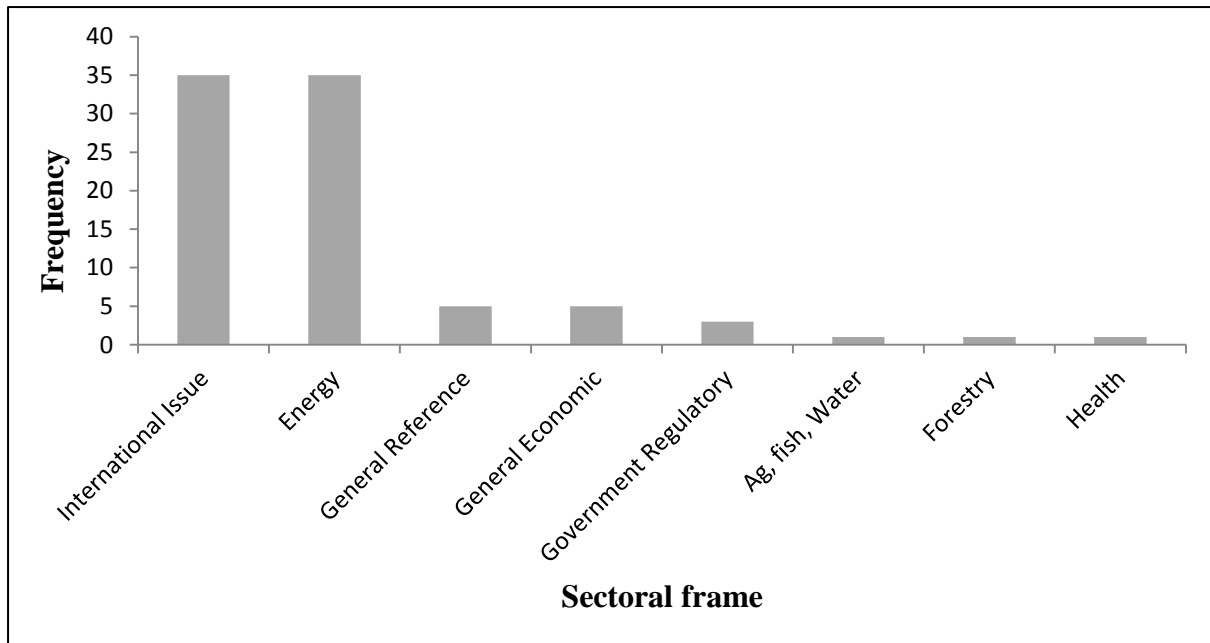
Figure 19. Contextual framing of climate issues (non-securitised), strategic level (US).

Frame	President	SECDEF	CJCS	Total
Opportunity	11	1	0	12
Neutral	40	2	6	48
Challenge	7	1	2	10
Threat	16	0	0	16
Total	74	4	8	86

Table 24. Language used to frame climate issues (non-securitised), strategic levels (US).

Presidential Program Results and Analysis

The Presidential Program analysed 191 artefacts, and found 50 separate sources containing 178 references to *climate change*.[96] Table 22 showed that for the overall Presidential Program, 14 references were coded in a securitised context and 74 were coded in a non-securitised context. Broadly, the results indicate that climate change was mainly framed as a non-securitised issue by presidents George W. Bush (2000 – 2008) and Barack Obama (2009 – current) across the period 2003 - 2013. Of these (non-securitised) coded references, Table 25 shows that presidents Bush and Obama predominately framed climate change as an energy issue (with 32 coded references), or an international issue (with 29 coded references). Further analysis of the Presidential Program revealed differences and similarities to how presidents Bush and Obama framed climate change.

Non Securitised Frame	Total
Energy	32
International / Global	29
Economic	5
Government / Regulatory	3
General reference	2
Agriculture, fisheries, Water	1
Forestry	1
Health	1
Total	74

Table 25. Contextual framing of climate issues (non-securitised), US Presidents Bush and Obama 2003 – 2013.

President George W. Bush

Americans have never left our destiny to the whims of nature, and we will not start now.

President Bush, Address to the Nation on Hurricane Katrina (2005)

Between 2003 – 2006 climate change was not a major factor in the speech-acts, national security strategies or executive orders of President George W. Bush.[97] Between 2003

---

[96] This statistic is "filtered" insofar that it has removed references contained in speech endnotes. All references contained in major policy documents (NSS, QDR, EO) were also removed. Various search results are identified as being either "filtered" or "unfiltered" (as previously defined).

[97] This finding, however, must be placed in context. Specifically, because this research did not code material from 2001 – 2002 it did not include a number of policies and documents which could have influenced the outcomes. These included President Bush's 2001 initiatives (*Climate Change Technology Program* (CCTP) or the *Climate Change Science Program* (CCSP) (2006)), President Bush's 2002 'Clear Skies Initiative' and the

– 2006 climate change was mentioned just four times (from two separate sources) in *all* presidential sources examined by this research (resulting in a single coded passage). By contrast, a text search of *terrorism* (and derivative words) during this period (2003 – 2006) yielded 599 references from 53 distinct sources (out of a possible 65 sources examined).[98] A search of *Iraq* in the sources yielded 1,887 references between 2003 – 2006 (55 sources). Put another way, 85 percent of all presidential sources examined between 2003 – 2006 contained some reference to *Iraq*, 80 percent for *terrorism* and just 3 percent for *climate change*. This simple example offers a clear insight into the strategic dominance of the Global War on Terror (including operations in Afghanistan (from 2001) and then Iraq (2003 – 2011)) compared with climate change throughout most of the Bush presidency. A comparative graphic is at Figure 20.
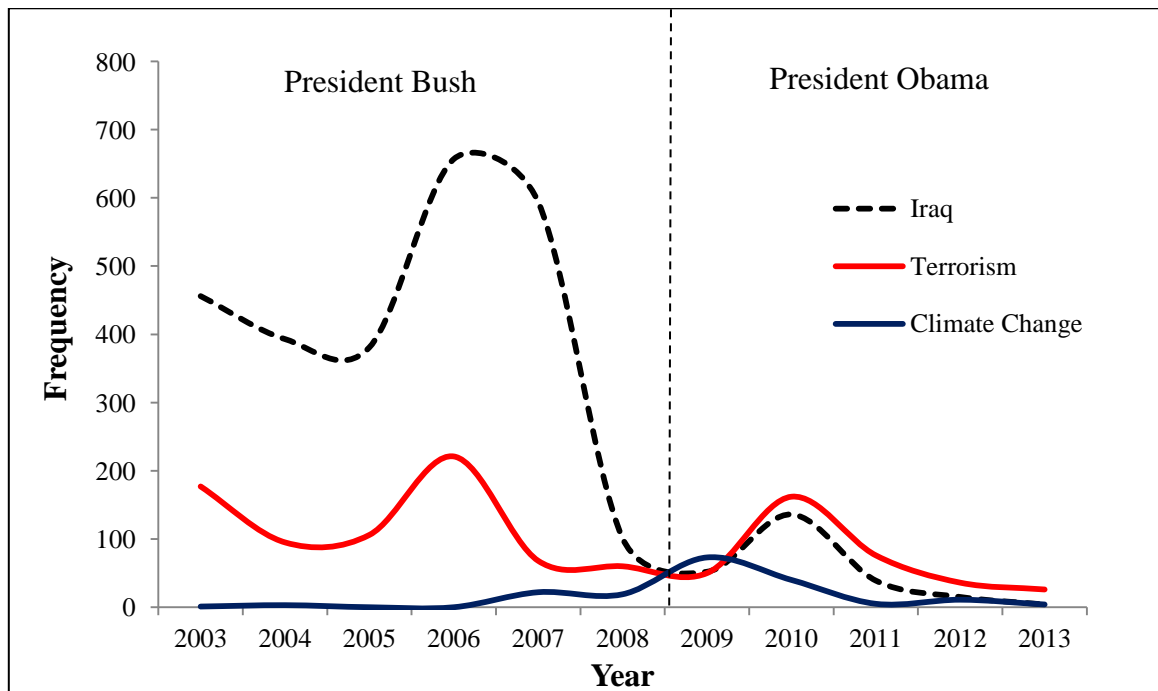
Figure 20. Comparison of Presidential priorities, 2003 – 2013. Mentions (Frequency) of the words *Iraq*, *Terrorism* and *climate change* in US Presidential sources 2003 – 2013.

The 2002 *National Security Strategy* (2002 NSS) highlighted the major security priorities that dominated the Bush presidency. Widely known for articulating a doctrine of "pre-emption"

2002 *National Security Strategy*. Although these documents were not coded as part of content analysis, they were included in the discussion.

[98]   Of these 65 sources, 60 were either speeches or official media conferences. The remaining five were executive orders. All searches were unfiltered.

('we will not hesitate to act alone, if necessary, to exercise our right of self-defense by acting pre-emptively'), the 2002 NSS sought to use its 'unprecedented – and unequalled – strength and influence' by implementing a 'distinctly American internationalism' (White House 2002, 1-6). Centred on three goals (political and economic freedom, peaceful relations with other states, and respect for human dignity), the 2002 NSS prioritised its effort to combating terrorism as well as the 'looming threat' of 'aggressive behaviour of rogue states' that see 'weapons of mass destruction as weapons of choice … [to] overcome the conventional superiority of the United States' (White House 2002, 15).

Surprisingly, despite a focus on hard security problems, the 2002 NSS *did* include a discussion on climate change. In Chapter four, under "A New era of Global Economic Growth through Free Markets and Free Trade", the NSS noted that economic growth 'should be accompanied by global efforts to stabilise greenhouse gas concentrations … [to contain] dangerous human interference with the global climate'. The 2002 NSS asserted that the US' overall objective was to reduce its emissions intensity[99] (18 percent over the decade) and listed six strategies to support this goal (including a commitment to the *intent* of the UNFCCC, engaging industry to cut the most potent GHGs, promotion of renewable energy, improved measuring standards, increase research and development on new technologies and provision of assistance to developing countries) (White House 2002, 20). Beyond these aspects, there was no discussion of the broader security risks posed by climate change.

By the 2006 US NSS, climate change had largely been removed from the strategic security narrative (however tenuously it previously existed). In this document, energy security (diversifying energy markets and ensuring energy independence) had become a supplementary issue in what continued to remain a singular focus on 'fighting and winning the war on terror and promoting freedom' (White House 2006, i).

By 2007 and 2008, however, President Bush increasingly referred to climate change. Across this period, this research identified 41 direct references to climate change in speech-acts (resulting in 21 coded passages of text). Over the total period examined under the Bush Presidency (2003 – 2008), content analysis returned 22 coded passages of text. The majority

---

[99]   As distinct from emissions *quantity.*

of these (17) were coded as non-securitised references and in a largely benign context (*neutral*). The five securitised references were all framed as *energy security*.

The language used by Bush to frame climate change was, for the most part, benign. Of those references coded, most were neutral. The research identified three occasions when Bush framed climate change as a challenge. On at least one of these occasions he identified it as a 'serious' challenge. Of significance, this research did not identify any instances of Bush framing climate change as a threat or crisis. As will be shown, this contrasted sharply with the rhetoric of President Obama, who frequently referred to climate change as a threat (Table 26c).

Overall, the content analysis identified three prominent categories within which climate change was framed during the Bush presidency: *energy*, the *economy* and as a *global* issue (Table 26, a & b). Although the coding identified the general trends, further detail was added through content analysis of the speeches and policies themselves. Thus, using a combination of research methods, the three interlocking propositions that guided President Bush's approach to climate change can be summarised:

(1)   Action on climate change was undertaken in the national self-interest. Primarily, it was not to damage economic growth (since economic growth represented the best solution to combatting global warming);

(2)   Action on climate change was to promote US energy security (with a focus on technological innovation to produce clean energy as well as concepts of "energy independence" from foreign oil) and;

(3)   Action on climate change was a collective (international) problem and any global agreement was to encompass the major developing nations, particularly China (Bush also 'upheld' the principles of UNFCCC but strongly disagreed with the Kyoto Protocol).

Regarding the economic dimension, Bush spoke adamantly that reducing emissions and meeting the challenge of climate change must not come at the expense of economic growth.[100] Indicative of this was President Bush's first major initiative on climate change (*Clear Skies Initiative*) announced on 14 February 2002 at the National Oceanic and Atmospheric Administration (Bush 2002b). Although this speech occurred outside the timeframe considered by this study, it provided an insight into Bush's early mindset on climate change. Arguably, it was a mindset that remained throughout his presidency. Specifically, the speech emphasised the centrality of acting in US' economic self-interest and in placing the economy at the forefront of a climate response:

> We must address the issue of global climate change … *But let's always remember, let's do what is in the interest of the American people*. Today, I'm confident that the environmental path that I announce will benefit the entire world. This new approach is based on this common-sense idea: that *economic growth is the key to environmental progress, because it is growth that provides the resources for investment in clean technologies* … growth is what pays for investments in clean technologies, increased conservation and energy efficiency (Bush 2002b; emphasis added).

In the same speech, Bush further argued:

> Addressing global climate change will require a sustained effort over many generations. My approach recognizes that *economic growth is the solution, not the problem*. Because a nation that grows its economy is a nation that can afford investments and new technologies.
>
> … We can tap the power of economic growth to further protect our environment … that's what we're going to do (ibid).

---

[100] The "economy" (as would be expected) was one of the highest stated priorities of President Bush. Notwithstanding terrorism and the impending invasion of Iraq, in his 2003 State of the Union address, President Bush stated: 'Our first goal is clear: We must have an economy that grows fast enough to employ every man and woman who seeks a job'.

Similar sentiments were prevalent across the of Bush presidency. Late in his presidential term on 3 April 2007, for example, during the *Presidents News Conference* Bush stated:

> In terms of the broader issue [of climate change], first of all, I've taken this issue very seriously. I have said that it is a serious problem. I recognize that man is contributing greenhouse gases, that – but here are the principles by which I think we can get a good deal. *One, anything that happens cannot hurt economic growth*. And I say that because, one, I care about the working people of the country, but also because, in order to solve the greenhouse gas issue over a longer period of time, it's going to require new technologies, which tend to be expensive. And it's easier to afford expensive technologies if you're prosperous (Bush 2007b; emphasis added).

In a speech on 28 September 2007, *Remarks During a Meeting on Energy Security and Climate Change*, President Bush again emphasised the importance of a strong economy in guiding decisions on climate change when he stated:

> Our guiding principle is clear: We must lead the world to produce fewer greenhouse gas emissions, and we must do it in a way that does not undermine economic growth (Bush 2007d).

Same year, separate speech, Bush (2007c) argued that 'whatever we do' in relation to addressing climate change it must 'not wreck the economy'. He further added:

> If you don't have money, it is really hard to develop new technologies. And so we need to be prosperous for a lot of reasons, primarily so our citizens can have a good life, but also so that we're wealthy enough to make the investments necessary to deal with greenhouse gases (Bush 2007c).

The second distinguishing aspect of President Bush's approach to climate change was linking the issue with *energy*. First, in a securitised context, all coded passages were done so in the

context of—or associated with—energy security (see Table 26a). Secondly, in a non-securitised context, ten of the possible seventeen coded passages were in the context of *energy*. The conflation of climate change and energy formed the most dominant narrative on the issue of climate change during the Bush Administration (over the period analysed). The energy-climate nexus also formed a feature within the military's framing of climate change, though this was observed to occur later in the decade.

Within President Bush's energy-climate nexus, nuances were found. Firstly, examination of President Bush's speech-acts suggested that action on climate change formed a supplementary justification in what was a far broader energy agenda dominated by concepts of energy security, energy independence and a belief that technology and innovation would solve (first) the energy 'crisis' and (later) the climate 'problem'. A general indication of the relative importance of *energy* over *climate change* is shown at Figure 21 which compares the frequency of the words in speeches and policy (unfiltered) examined for President Bush between 2003 – 2008.
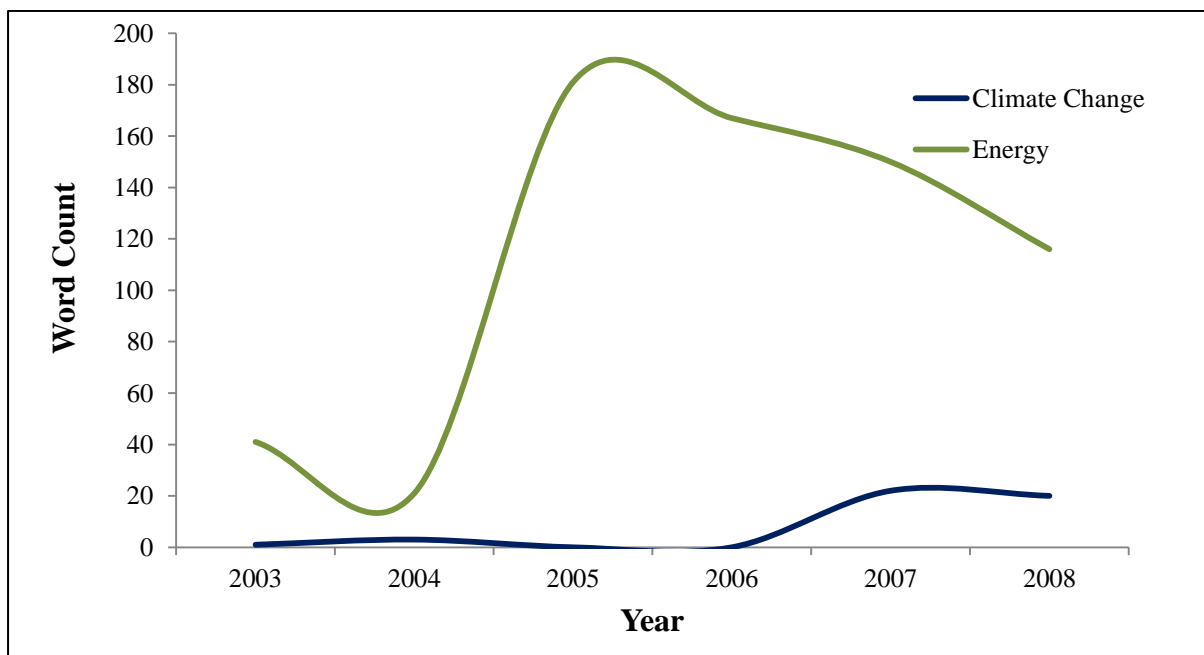
Figure 21. President Bush mentioning *energy* versus *climate change* in speeches. (Documents examined also included the US NSSs and selected Executive Orders of President Bush. All data is unfiltered).

The dominance of *energy* issues (over *climate* issues) was also reflected in proposed and approved congressional legislation as well as in Presidential Executive Orders (EO).

Prominent legislative examples included: the *Clear Skies Act of 2003* (introduced, not enacted), the *Energy Policy Act of 2005* (EPACT – P.L. 109-58, 8 August 2005), the *Advanced Energy Initiative* (proposed in the 2006 State of Union address) and the *Energy Independence and Security Act of 2007* (EISA – P.L. 110-140, 19 December 2007). Prominent Presidential Executive Orders relating to energy included: *EO 13302 – Actions to Expedite Energy-Related Projects* (2003), *EO 13423 – Strengthening Federal Environmental, Energy and Transportation Management* (24 January 2007) and *EO 13432 – Cooperation Among Agencies in Protecting the Environment With Respect to Greenhouse Gas Emissions From Motor Vehicles, Nonroad Vehicles and Nonroad Engines* (14 May 2007). Overall, these initiatives largely formed the basis of President Bush's broad-based national approach on climate change through a focus on reducing US energy intensity, reducing the relative size of emissions to the overall economy and the development of clean energy.

The focus on energy regulation and legislation (over climate change) by President Bush was also reflected in initiatives within the US DoD. A 2009 report by the Congressional Research Service, *Department of Defense Facilities Energy Conservation Policies and Spending*, surmised that during the Bush era, Congress appropriated $443 million in Defense energy conservation projects with a further $2.8 billion in "Energy Savings Performance Contracts" between 1999 and 2007. A summary of the enacted and introduced energy legislation (pertaining to the US military) and Defense Authorization Acts during the Bush era is at Appendix 3-2. Overwhelmingly, this shows that climate change mitigation was *not* a factor when reducing US DoD energy consumption or improving its efficiency (though it was, later to become one during the Obama Administration). Undoubtedly, the main driver of the energy program within the US DoD was the requirement to 'to rein in [Defense] energy consumption and spending' (Andrews 2009, ii).[101]

Not surprisingly, *energy* was accorded a high priority from the outset of the Bush Administration. In just his second week in office, President Bush established the National

---

[101]   The CRS research highlights how energy conservation programs in US federal government can be traced to 1970, including the *Federal Energy Management Program* (FEMP) of 1973, the 1978 *National Energy Conservation Policy Act* (NECPA, P.L. 95-619) and the 1985 *Deficit Reduction Act* (P.L. 99-272). Measured against a 1985 baseline, by 2005 the US DoD reported a 28.3 percent reduction in energy consumption (CRS, 2009, p. 1).

Energy Policy Development Group (NEPDG, led by the Vice President Dick Cheney) to develop a national energy policy to 'help bring together business, government, local communities and citizens to promote dependable, affordable and environmentally sound energy for the future' (National Energy Policy Development Group 2001). In its opening passages, the report (*National Energy Policy*) gave the staple narrative of President Bush's subsequent speeches on energy. Namely, the fear that the US was facing a 'national energy crisis' that would undermine 'our economy, our standard of living and our national security' (National Energy Policy Development Group 2001, vii). Crucial to this narrative was also a determination to decouple the US from its reliance on foreign oil and achieve energy independence. While these concepts have a long history in US political discourse (particularly since the energy crisis of the 1970s), the speech-acts of President Bush contained prominent examples and were noted by this research for their repetition across both presidential terms.

In his first address to a joint session of congress (27 February 2001), for instance, Bush singled out 'rising energy prices' as a 'warning sign'. Invoking a sense of urgency and the spectre of a national and geopolitical crisis, Bush gravely stated:

> As we meet tonight, many citizens are struggling with the high cost of energy. We have a serious energy problem that demands a national energy policy. The West is confronting a major energy shortage that has resulted in high prices and uncertainty. I've asked … my administration to develop a national energy policy … America must become more energy independent, and we will (Bush 2001).

Concepts of energy independence also featured in *all* eight of President Bush's State of the Union addresses. In 2002, Bush argued that that he would act to 'increase energy production at home so America is less dependent on foreign oil' (Bush 2002a). Notwithstanding the war on terror, in the 2003 State of Union address 'energy independence' was identified as his third priority (after strengthening the economy and healthcare reform). Many of President Bush's speeches also linked energy independence with different forms of security, namely: energy security, economic security and national security (including the threat from terrorism). Again, a dominant theme in this context was the spectre of foreign oil:

- 'One of the greatest results … will be energy independence for this Nation. It's important for our country to understand … we import that oil from countries that don't particularly like us … it jeopardizes our national security to be dependent on sources of energy from countries that don't care for America, what we stand for, what we love. It's also a matter of economic security, to be dependent on energy from volatile regions of the world. Our economy becomes subject to price shocks or shortages or disruptions or, one time in our history, cartels' (Remarks on Energy Independence (Bush 2003)).

- 'Extending hope and opportunity depends on a stable supply of energy that keeps America's economy running and America's environment clean. For too long, our Nation has been dependent on foreign oil. And this dependence leaves us more vulnerable to hostile regimes and to terrorists who could cause huge disruptions of oil shipments and raise the price of oil and do great harm to our economy' (State of the Union address (Bush 2007a)). And,

- 'The dependency upon oil also puts us at the mercy of terrorists. If there's tight supply and demand, all it requires is one terrorist disruption of oil and that price goes even higher. It's in our interests to end our dependency on oil because it - that dependency presents a challenge to our national security' (Remarks at the Washington International Renewable Energy Conference (Bush 2008c).

The underpinning tenet, as Bush viewed it, of freeing the US from foreign oil dependence was that it would provide stability for the pursuit of economic growth. In his 2005 State of the Union address, Bush argued that 'to keep our economy growing, we also need reliable supplies of affordable, environmentally responsible energy … that makes America more secure and less dependent on foreign oil' (Bush 2005). To break the dependence on foreign oil, Bush constantly spruiked the virtues of the 'technological fix'. In the 2006 State of the Union address Bush argued: 'keeping America competitive requires affordable energy. And here we have a serious problem: America is addicted to oil … the best way to break this addiction is through technology' (Bush 2006). In 2007, Bush linked the development of energy technologies to solving climate change by stating:

> For many years, those who worried about climate change and those who worried about energy security were on opposite ends of the debate. It was said that we faced a choice between protecting the environment and producing enough energy. Today, we know better. These challenges share a common solution: technology … The key to this effort will be the advance of clean energy technologies (Bush 2007d).

In this capacity, Bush looked to the use of clean coal technologies ('our challenge is to take advantage of it [coal] while maintaining our commitment to the environment' (Bush 2007d); revitalising US domestic nuclear energy industry ('there can be no single solution to climate change, but there can be no solution without nuclear power' (Bush 2007e)); as well as new fuel technologies (including renewables for broad base energy generation as well as bio-fuels for transportation). By 2007, Bush began linking many aspects of the energy-climate narrative (foreign oil, energy independence, technology and climate change) in concise form. In the 2007 State of the Union address Bush deployed his grand narrative:

> For too long, our Nation has been dependent on foreign oil. And this dependence leaves us more vulnerable to hostile regimes … [that could] do great harm to our economy. It's in our vital interest to diversify America's energy supply. The way forward is through technology … that will enable us to live our lives less dependent on oil. And these technologies will help us be better stewards of the environment, and they will help us to confront the serious challenge of global climate change (Bush 2007a).

In his final State of the Union address, Bush reinforced these points—particularly noting the deployment of new technologies to enhance energy security and combat climate change:

> Our security, our prosperity, and our environment all require reducing our dependence on oil … The United States is committed to strengthening our energy security and confronting global climate change. And the best way to meet these goals is for America to

continue leading the way toward the development of clearer and more
energy efficient technology (Bush 2008a).

In relation to the military and climate change, however, it was not until 2008 that the Bush Administration directed a specific action. In the *National Defense Authorization Act for Fiscal Year 2008*, the Bush Administration directed the US DoD to examine the potential effects of climate change on facilities, capabilities and missions. Specifically, the *Defense Authorization Act 2008* required the next NSS (2010) to include guidance for military planners, including (Defense Authorization Act 2008):

(1) The risks of projected climate change to current and future missions of the armed forces;

(2) A requirement to update Defense plans based on these assessments, including working with allies and partners to incorporate climate mitigation strategies, capacity building, and relevant research and development; and

(3) Development of the capabilities needed to reduce future impacts.

Similarly, the 2008 *Defense Authorization Act* directed the next QDR to use mid-range projections from either the IPCC AR4 report or comparable research to:

[E]xamine the capabilities of the armed forces to respond to the consequences of climate change, in particular, preparedness for natural disasters from extreme weather events and other missions the armed forces may be asked to support inside the United States and overseas (Defense Authorization Act 2008).

Although this initiative was made late in Bush's term, it came off a growing volume of literature and debate surrounding climate change and national security. As discussed in the literature review, influential contributions in this period included a 2007 Center for Naval Analyses (CNA) report *National Security and the Threat of Climate Change*, a 2007 report by the Council on Foreign Relations *Climate Change and National Security: An Agenda for Action* as well as a 2008 National Intelligence Assessment on the *National Security Implications of Global Climate Change to 2030*. The 2007 CNA Report, produced by a Military Advisory Board of eleven retired three and four-star generals and admirals from

each of the military services, was particularly noteworthy for injecting urgency into the debate: 'As military leaders we know we cannot wait for certainty. Failing to act because a warning isn't precise is unacceptable' (CNA quoted in Boxer Report 2008, 6). Likewise, the National Intelligence Priorities Framework identified climate change as early as 2006 for being an 'important global issue' with 'wide-ranging implications for US national security interests over the next 20 years' (Thomas Fingar cited in US Congress 2008, 13). The Chairman of the National Intelligence Council, Thomas Fingar, noted 'the time was right to develop a community level product on the national security significance of future climate change' (Thomas Fingar cited in US Congress 2008, 16 & 17).

In addition to this body of work, climate change as a national security issue was vigorously debated in the US Congress including in April 2007 *Geopolitical Implications of Rising Oil Dependence and Global Warming* (Hearing before the Select Committee on Energy Independence and Global Warming); in May 2007 *Climate Change: National Security Threats* (Hearing before the Committee on Foreign Relations); in September 2007 *National Security Implications of Climate Change* (Hearing before the Subcommittee on Investigations and Oversight, Committee on Science and Technology); in June 2008 *Climate Change: Costs of Inaction* (Hearing before the Committee on Energy and Commerce); in June 2008 *National Security Implications of Global Climate Change* (Joint Hearing before Select Committee on Energy and Independence and Global Warming and Subcommittee on Intelligence, Community Management, Permanent Select Committee on Intelligence); and in July 2009 *Climate Change and Global Security: Challenges, Threats and Diplomatic Opportunities* (Hearing before the Committee on Foreign Relations) just to name a few. A feature of these hearings, as well as other literature (particularly from US think-tanks), was the presence and robust contribution of retired senior military officers to frame climate change as a significant threat to US national security.[102]

---

[102]   Many examples exist to illustrate this. In the *National Security Implications of Climate Change*, VADM Paul G. Gaffney II noted 'The CNA Report likens the threat of climate change to that of the strategic threats during the Cold War, that is: while the probability of disastrous climate change cannot be determined with certainty, *the effects of climate change (if current trends continue) on international security are so great that one must prepare to deal with severe security consequences*' (Gaffney quoted in US House of Representatives 2008; emphasis added). This thesis earlier highlighted the contributions of General Gordon Sullivan, Chariman of the CNA Military Advisory Board.

In the context of a growing domestic momentum for action, Bush struck a further directive eleven days before he left office signalling renewed US interest in the Arctic (*National Security Presidential Directive 66 / Homeland Security Directive 25*). Partly based on 'the effects of climate change and increasing human activity' the directive also cited a 'growing awareness that the Arctic is … rich in resources' as well as 'several developments' in both national and international approaches as a pretext for a new approach (Bush 2009, 48). In this context, the directive highlighted the US had 'fundamental security interests in the Arctic region' that included 'missile defence and early warning, deployment of sea and air systems for strategic sealift, strategic deterrence, maritime presence and maritime security operations, and ensuring freedom of navigation and over-flight' (ibid). It specifically directed the Secretary of Defense to, amongst other things, '[d]evelop greater capabilities and capacity … increase Arctic maritime domain awareness … preserve [US] global mobility … and project a sovereign United States maritime presence' (ibid, 49). Thus, although there is a perception that the Obama Administration advanced climate change within the military, it was the Bush Administration that initiated the broad scale US military response.

The third—and final—feature distinguishable in the speech-acts of President Bush and his approach to climate change was his opposition to the Kyoto Protocol and the desire to develop an international agreement beyond or outside the existing framework. This aspect was (weakly) reflected in the research results, whereupon relevant text was coded under *global/international*.[103] Throughout his presidency, Bush repeated his opposition to the Kyoto Protocol. Not surprisingly, the main reason Bush refused to ratify the Kyoto Protocol was that it might weaken the US economy. In his first major speech on climate change in 2002, for instance, Bush argued:

> As President of the United States, charged with safeguarding the welfare of the American people and American workers, I will not commit our nation to an unsound international treaty that will throw millions of our citizens out of work (Bush 2002b).

---

[103] Many passages that were coded under *energy* contained references to international aspects of climate change. However, the method used in this case study largely coded text to a single theme.

In addition to economic reasons, Bush repeatedly cited the omission of major developing nations, particularly China and India, as a reason not to ratify the Kyoto Protocol. This position was made explicit when he remarked '[o]ne of the main reasons I was against Kyoto was that China wasn't at the table. I mean, we could do all we wanted to do, but it wouldn't affect greenhouse gases over the long run unless a country like China had agreed to participate' (Bush 2007b).[104]

In his opposition to the Kyoto Protocol, Bush sought a new 'international approach to energy security and climate change' based on the development of national plans that 'reflect[ed] each country's different energy resources, different stages of development, and different economic needs' (Bush 2007d). Thus, whereas the UNFCCC Kyoto Protocol required a 'common [strategy] but differentiated responsibility' to reducing emissions, Bush adopted the outlook that 'while our strategies may be differentiated, we share a common responsibility to reduce greenhouse gas emissions while keeping our economies growing' (2007d). Whereas the UN differentiated by 'responsibility', Bush differentiated by 'strategy'. In this context, Bush stressed the importance of developing global emission objectives that included 'concerted effort by *all* our nations' [emphasis added], according to its own specific circumstances in which 'each nation must decide for itself the right mix of tools and technologies to achieve results' (Bush 2007d). Like his conservative Australian counterpart, Prime Minister Howard, national self-interest was actively promoted to the public as the pre-eminent rationale. Despite this intent, a new agreement failed to materialise. On 4 November 2008, the Republican nominee Senator John McCain (R-Az.) lost the election to Democrat, Barack Obama (D-Il.).

---

[104]   Literally dozens of quotes on this point were found during the research. Three further examples are provided here: 'The Kyoto Protocol would have required the United States to drastically reduce greenhouse gas emissions. The impact of this agreement, however, would have been to limit our economic growth and to shift American jobs to other countries while allowing major developing nations to increase their emissions. Countries like China and India are experiencing rapid economic growth [but] this also means they're emitting increasingly large quantities of greenhouse gases, which has consequences for the entire global climate'. 2008, *Remarks on Energy and Climate Change* (Bush 2008d). 'In order for there to be effective international agreement, it must include − these agreements must include commitments, solid commitments, by every major economy, and no country should get a free ride'. 2008, *Remarks at the Washington International Renewable Energy Conference* (Bush 2008c). 'Look, we can't have an effective agreement unless China and India are part of it. It's as simple as that' (Bush 2008b)

President Barack Obama

No nation, however large or small, wealthy or poor, can escape the impact of climate change.

President Obama, Address to United Nations (2009)

The election of Barack Obama signified a re-prioritisation of climate change by the US. In November 2008, as president-elect, Obama delivered a video-message to the *Governors Global Climate Summit* in which he declared the issue an urgent priority which he would immediately take-up to 'strengthen our security':

> Few challenges facing America – and the world – are more urgent than combating climate change. The science is beyond dispute and the facts are clear. Sea levels are rising … Now is the time to confront this challenge once and for all. Delay is no longer an option. Denial is no longer an acceptable response. The stakes are too high. The consequences, too serious (Obama 2008).

In a 2009 speech to the United Nations General Assembly, President Obama identified the 'preservation of the planet' as one of his key 'four pillars' (Obama 2009k). In this context, Obama (2009k) specifically identified climate change as a 'responsibility that must not be deferred' and that 'the days when America dragged its feet on this issue are over'. The Obama Administration's new outlook was reflected in this research which recorded a surge in the number of references to climate change in the speech-acts and policies of President Obama (Figure 22). Indeed, of the Obama sources examined between 2009 – 2010, almost 60 percent contained one or more references to climate change.[105] This highlights the increased prominence that climate change had in the Obama Administration, particularly the years 2009 and 2010.[106]

---

[105]   In making this assessment, it should be noted that some speeches analysed also contained a question and answer session following the major speech. Thus there are instances where climate change may not have been raised in the speech itself, but was then included in discussions thereafter.

[106]   The research examined 101 artefacts between 2003 – 2008 for President Bush and 90 artefacts for President Obama (2009 – 2013). The research also examined fewer artefacts across 2011 – 2013 compared to the first two years of the Obama Administration (2009 – 31 artefacts, 2010 – 22 artefacts, 2011 – 19 artefacts, 2012 – 12 artefacts, 2013 – 5 artefacts).

Securitised Frame	Bush	Obama	Total
International / Global	0	5	5
National	0	2	2
Energy	5	2	7
Total	5	9	14

(a). Securitised.

Non Securitised Frame	Bush	Obama	Total
International, Global	3	26	29
Energy	10	22	32
General reference	1	1	2
Economic	2	3	5
Government regulatory	0	3	3
Ag., Fisheries, Water	0	1	1
Forestry	1	0	1
Health	0	1	1
Total	17	57	74

(b). Non-securitised.

Securitised Frame	Bush	Obama	Total
Opportunity	0	11	11
Neutral	14	26	40
Challenge	3	4	7
Threat	0	16	16
Total	17	57	74

(c). Frame.

Table 26. Climate Change framing by President Bush and Obama, 2003 – 2013.
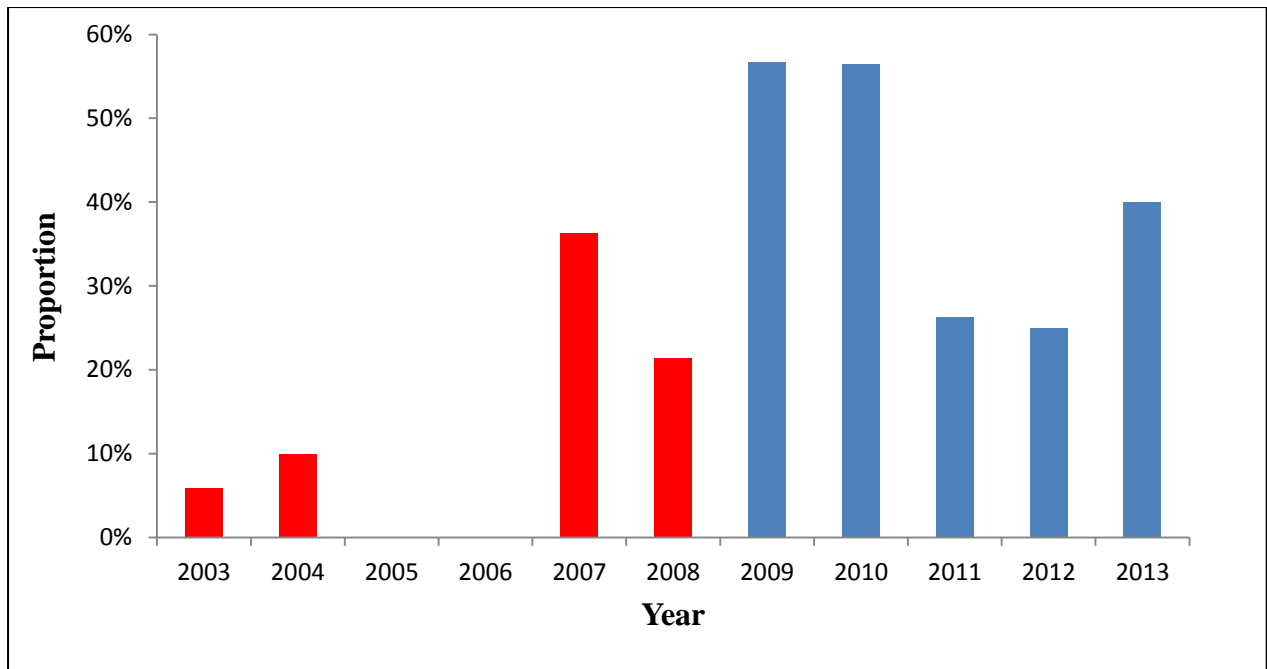
Figure 22. Proportion of *climate change* mentions examined in presidential speeches and policies, 2003 – 2013. The rise of climate change from 2007 onwards in Presidential sources, and particularly during the Obama Administration (blue), is evident.

The following passages further examine the climate-securitisation issues (and climate-response more broadly) of President Obama. The discussion focuses on differences and similarities to his predecessor.

Similarities. This research identified a number of similarities between President Bush and Obama's approach to climate change. First, like President Bush, President Obama's approach to climate change was dominated by *energy* considerations. This was reflected in the research results (Table 25b) which totalled 22 coded passages within the non-securitised energy-climate nexus and a further two securitised coded passages under energy security. Similarly, concepts of foreign oil and energy independence featured strongly as did ideas of acting in the national self-interest:

> We're convinced, for our own self-interest, that the way we use energy, changing it to a more efficient fashion, is essential to our national security, because it helps to reduce our dependence on foreign oil and helps us deal with some of the dangers posed by climate change (Obama 2009d).

Also similar to Bush, Obama often spoke of responding to climate change whilst ensuring the growth of the US economy and protecting jobs. However, unlike Bush, Obama's outlook on climate change and the economy, was heavily influenced by the 2008 – 2009 global financial crisis (GFC) and resultant American Recovery and Reinvestment Act (ARRA) of 2009 (P.L. 111-5) that directed significant investment towards development of US clean energy economy (ARRA 2009).[107] The military was a major beneficiary of this stimulus package, particularly in the areas of clean energy and energy efficiency (Andrews 2009, 14).

Broadly, both Bush and Obama frequently cited the 'economy', 'energy security' and 'climate change' as interdependent issues. An expanded example by Obama linking these issues was given during a speech on 26 January 2009:

> I want to say a few words about the deepening economic crisis … and the need for urgent action.
>
> … We owe it to each of them and to every single American to act with a sense of urgency and common purpose. We can't afford distractions, and we cannot afford delays, and that is why I look forward to signing an American recovery and reinvestment plan that will put millions of Americans to work and lay the foundation for stable growth that our economy needs and that our people demand. *These are extraordinary times, and it calls for swift and extraordinary action*.
>
> At a time of such great challenge for America, no single issue is as fundamental to our future as energy. America's dependence on oil is one of the most serious threats that our Nation has faced. It bankrolls dictators, pays for nuclear proliferation, and funds both sides of our struggle against terrorism. It puts the American people at the mercy of shifting gas prices, stifles innovation, and sets back our ability to compete.

---

[107] American Recovery and Reinvestment Act (ARRA) of 2009 delivered $68.4 billion spending on energy efficiency measures and renewable programs as well as a range of tax incentives.

These urgent dangers to our national and economic security are compounded by the long-term threat of climate change, which if left unchecked could result in violent conflict, terrible storms, shrinking coastlines, and irreversible catastrophe. These are the facts … Now America has arrived at a crossroads. Embedded in American soil and the wind and the sun, we have the resources to change. Our scientists, businesses, and workers have the capacity to move us forward. It falls on us to choose whether to risk the peril that comes with our current course or to seize the promise of energy independence. And for the sake of our security, our economy, and our planet, we must have the courage and commitment to change (Obama 2009h; emphasis added).

Implicit within this speech, and others like it, was the primacy of the economy over any other issue, including the climate response. It also showed that 'extraordinary action'—words that approximate closely with Copenhagen's emergency measures—were only raised in the context of the GFC. Climate change was a part of this narrative, but it was not the defining part. Thus, when Obama spoke on the importance of combatting climate change by introducing a federal cap-and-trade scheme via the *Waxman-Markey Bill* he argued it on economic grounds: '[m]ake no mistake: this is a jobs bill' (Obama 2009c).

Like Bush, Obama constantly noted 'my highest priority as President is creating jobs and putting Americans back to work' (Obama 2011). Moreover, when climate change was included in discussions on the economy, both Bush and Obama spoke on the need to grow the economy (first) whilst mitigating or adapting to climate change (second). This was true before the GFC, but was particularly the case after it. In noting economic primacy, both Obama and Bush also regularly argued to achieve both (i.e., jobs and climate action), simultaneously. In November 2012 at the *President's News Conference*, Obama made the case for such a "win-win" strategy:

[I]f the message is somehow we're going to ignore jobs and growth simply to address climate change, I don't think anybody is going to go for that. I won't go for that.

> If, on the other hand, we can shape an agenda that says we can create
> jobs, advance growth, and make a serious dent in climate change and
> be an international leader, I think that's something that the American
> people would support (Obama 2012b).

But in undertaking an "all-of-the-above" strategy, Obama presented a realist outlook that also embraced the exploitation of fossil fuels and "cleaner" sources of energy. It belied his rhetoric on climate change and it reflected a more pragmatic political outlook that was reminiscent of Bush. Obama's 2012 State of the Union address made this apparent where he proudly noted his Administration had 'opened millions of new acres for oil and gas exploration, and tonight I'm directing my administration to open more than 75 percent of our potential offshore oil and gas resources … American oil production is the highest that it's been in 8 years' (Obama 2012a).

Although at a very broad scale, another similarity between Bush and Obama was that both tended to frame climate change in a non-securitised manner (Table 26, a & b). Despite this, the research did identify significant differences, and it is to these the thesis now turns.

Differences in Approaches to Climate Change between President Bush and Obama

Having identified some similarities between the two presidents, the research also identified major divergences. A key point summary includes:

(1)   Climate change was heavily dominated by global considerations during Obama's presidency. In particular, COP 15 marked a major moment in international climate negotiations that resulted in the "Copenhagen Accord" and a commitment by states to limit planetary warming to no more than $2^{o}C$. This aspect was reflected in the research results whereupon more than half of all coded references (non-securitised) framed climate change as an international issue (Table 26b).

(2)   President Obama spoke more frequently on the issue of climate change, with an emphasis on the opportunities presented through the advent of a clean energy economy. President Obama, for instance, discussed climate change in all but one of his State of Union addresses between 2009 – 2013. In 2011, although there was

no direct reference to it, he discussed his Administration's clean energy goals. Table 26c shows this research identified climate change was framed as an opportunity on (at least) eleven occasions. Arguably, the case for climate change as an opportunity was used to support clean energy initiatives—and jobs growth more generally—in ARRA of 2009.

(3)   President Obama framed climate change as a security threat and had a broader interpretation of the threats posed by climate change that Bush. This was partially born out in the research results (Table 26a), but was elaborately evident in his speech-acts (discussed below).

(4)   President Obama used a mixture of short-term and long-term outlooks to frame climate change. The research coded five occasions where Obama framed climate change as an urgent, crisis-like issue requiring immediate action. Bush was never found to have framed climate change in this manner.

(5)   President Obama sought an international binding agreement within the framework of the UN but accepted this would take some time to achieve on account of the limitations of US Congress as well as international 'deadlock'. In a speech in 2009 he argued these points, adding 'I actually think that it's necessary for us, ultimately, to get such treaty, and I am supportive of such efforts' (Obama 2009b).

(6)   President Obama undertook expanded regulatory action to address climate change, particularly through *Executive Order 13514 – Federal Government Leadership in Environmental, Energy and Economic Performance* (2009).[108] This directed all federal agencies (including US DoD) to reduce emissions and undertake organisational risk assessments posed by climate change.

(7)   President Obama spoke on a requirement for legislating a 'market-based cap on carbon pollution'. This differed from President Bush who argued that there was a

---

[108]   This was superseded in November 2013 by *Executive Order 13653 – Preparing the United States for the Impacts of Climate Change.*

'wrong way' and a 'right way'. Bush argued: 'bad legislation would impose tremendous costs on our economy … the wrong way is to raise taxes, duplicate mandates, or demand sudden and drastic emission cuts … the right way is to set realistic goals for reducing emissions, consistent with advances in technology, while increasing our energy security and ensuring our economy can ... prosper' (Bush 2008d).

(8)   President Obama issued a specific plan relating solely to addressing climate change, *The President's Climate Action Plan* (13 June 2013). Although the plan was not considered during research coding (since it fell outside the timeframe), it was found to represent policy continuation with similar rhetoric from previous speeches and policy acts. In particular, the *Climate Action Plan* placed significant emphasis on regulatory initiatives or government-led initiatives.

Returning to the central aims of this thesis, the following discussion will expand on the key differences each president had in terms of climate securitisation. In the period examined, President Obama discussed the security dimension of climate change in far broader terms than his predecessor. For instance, whereas Bush had a narrow interpretation of climate security (centred on energy security), Obama framed climate change as an international, national and energy security threat (Table 26). In addition, Obama often went into some detail to describe the actual physical, social, economic and security threats posed by climate change.

Obama also made a point to emphasise the magnitude of the threats by arguing that it represented a planetary-wide threat in which no state (or people) would be immune. Furthermore, Obama also spoke on how climate change threats were already occurring and that they were not solely to be viewed in long timescales. These aspects were not evident during President Bush speeches. Selected quotes by Obama highlight these points:

-   'No nation, however large or small, wealthy or poor, can escape the impact of climate change. Rising sea levels threaten every coastline. More powerful storms and floods threaten every continent. More frequent droughts and crop failures breed hunger and conflict in places where hunger and conflict already thrive. On shrinking islands,

families are already being forced to flee their homes as climate refugees. The security and stability of each nation and all people – our prosperity, our health, and our safety – are in jeopardy, and the time we have to reverse this tide is running out' (Remarks by the President at United Nations Secretary General Ban Ki-Moon's Climate Change Summit (Obama 2009f)).

- 'The danger posed by climate change cannot be denied. Our responsibility to meet it must not be deferred. If we continue down our current course, every member of this Assembly will see irreversible changes within their borders. Our efforts to end conflicts will be eclipsed by wars over refugees and resources. Development will be devastated by drought and famine. Land that human beings have lived on for millennia will disappear. Future generations will look back and wonder why we refused to act, why we failed to pass on an environment that was worthy of our inheritance' (Remarks by the President to the United Nations General Assembly (Obama 2009g)).

- 'A warming planet will spread disease, shrink water resources, and deplete crops, creating conditions that produce more famine and more conflict' (Remarks to the Ghanian Parliament in Accra (Obama 2009j)). And,

- 'I don't think I have to emphasize that climate change is one of the defining challenges of our time. The science is clear and conclusive … Every nation on this planet is at risk, and just as no one nation is responsible for climate change, no one nation can address it alone' (Remarks on the Declaration by the Major Economies Forum on Energy and Climate Change in L'Aquila, Italy (Obama 2009i)).

Obama also constantly referred to climate change as an urgent problem requiring both short and long-term responses. In many respects, the language used by Obama came close to

approximating the qualifying language of existential threat requiring emergency measures under the Copenhagen School securitisation framework. Again at the 2009 UN General Assembly:

> [T]he threat from climate change is serious, it is urgent, and it is growing. Our generation's response to this challenge will be judged by history, for if we fail to meet it boldly, swiftly, and together, we risk consigning future generations to an irreversible catastrophe (Obama 2009g).

Again, in the 2009 declaration during the Major Economies Forum on Energy and Climate:

> Climate change is one of the greatest challenges of our time. As leaders of the world's major economies, both developed and developing, we intend to respond vigorously to this challenge, *being convinced that climate change poses a clear danger requiring an extraordinary global response* (cited in Major Economies Forum Declaration 2009; emphasis added).

Similar rhetoric was also evident at COP 15 in the context of establishing a new international climate agreement. During a speech at a Plenary Session of the UN Climate Change Conference in Copenhagen, Obama argued:

> The time for talk is over … there is no time to waste. America has made our choice … We are ready to get this done today, but there has to be movement on all sides to recognize that it is better for us to act than to talk; it's better for us to choose action over inaction, the future over the past. And with courage and faith, I believe that we can meet our responsibilities to our people and the future of our planet (Obama 2009d).

Notwithstanding President Bush's 2008 *Defense Authorization Act*, the new policy directions of the Obama Administration on climate change had a measured impact on the US DoD. At the broadest level, Obama's 2008 presidential victory set the political conditions necessary

for a credible military response to climate change. Part of this meant mainstreaming climate change as a legitimate national security issue. This was done—as a continuation of policy outcomes established late in the Bush term—in the 2010 US NSS (and also the 2010 QDR discussed in the military section below). Furthermore, Obama commissioned a number of separate initiatives in addition to the 2010 NSS, including the requirement for the US DoD to develop a departmental level climate change adaptation plan (addressed in detail below, under SECDEF Program). Lastly, Obama also cited the US DoD in speeches (and policy) designed to leave an impression that the US DoD was actively contributing to broader national climate change mitigation efforts. Similarly, Obama also cited the military leadership as advocating for action on climate change on the basis of its risk to security. In his 2009 Nobel Lecture, Obama noted:

> It is not merely scientists and environmental activists who call for swift and forceful action – its military leaders in my own country and others who understand our common security hangs in the balance (Obama 2009a).

Framing the military as climate advocates and ensuring substantive military response represented a vastly different approach from Bush who—in the speeches analysed—never sought to link the US military to climate change. Three examples from Obama's term highlight this difference.

First was *EO 13514,* that specifically called upon the Federal Government to 'lead by example' through creation of a 'clean energy economy that will increase our Nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of the environment' (Executive Order 13514 2009). Within this framework, *EO 13514* mandated the US DoD take specific action on climate change that included (but was not limited to): (1) a requirement to produce an annual strategic sustainability performance plan that included a climate change adaptation plan; (2) a requirement to evaluate climate change risks and vulnerabilities to manage the effects of climate change on agency operations and missions in both the short and long-term; and (3) a requirement to participate in interagency Climate Change Adaptation Task Force. Moreover, while *Defense Authorization Act 2008* initiated *general* guidance for military planners on climate change (born out by the 2010 NSS

and 2010 QDR), it was *EO 13514* that effectively bought forward *specific* timeframes, detailed requirements and an understanding that US DoD leaders would be held accountable.

Secondly, climate change was mainstreamed as a security issue in the 2010 NSS. It represented the first time that climate change had been dealt with in detail by the pre-eminent US national security document. In total, there were 23 direct references to climate change, with three specific paragraphs that addressed the issue under the heading 'key global challenge'. The amplified rhetoric in relation to climate change within the 2010 NSS marked a further significant departure from the Bush Administration (the 2006 NSS did not refer to climate change at all). Highlighting the scale and urgency, the 2010 NSS argued:

> The danger from climate change is real, urgent and severe. The change wrought by a warming planet will lead to new conflicts over refugees and resources; new suffering from drought and famine; catastrophic natural disasters; and the degradation of land across the globe. The United States will therefore confront climate change based upon clear guidance from the science, and in cooperation with all nations (White House 2010, 47).

A third aspect was to link the US DoD as part of broader national climate change mitigation and adaptation plans. In his 2012 State of the Union address, Obama noted the inability of Congress to pass a 'comprehensive plan to flight climate change' led him to direct the development of clean energy on federal land. He specifically singled out the US DoD and US Navy as making 'one of the largest commitments to clean energy in history'. This was further reinforced in the *President's Climate Action Plan* that identified the US DoD as contributing to a broad range of mitigation and adaptation measures.

Secretary of Defence (SECDEF) Program Results and Analysis

Analysis of the SECDEF program was undertaken using 811 sources published between 2003 – 2013 (Table 27 lists the SECDEFs analysed and Table 28 lists the source breakdown). A text search for *climate change* and *global warming* returned eleven separate sources containing a total of 37 references. From this, eleven passages of text were coded within a securitised context and four passages of text were coded in a non-securitised context.

Secretary	Took Office	Left Office	Serving President
Donald Rumsfeld	January 20, 2001	December 18, 2006	George W. Bush
Robert M. Gates	December 18, 2006	July 1, 2011	George W. Bush Barack Obama
Leon Panetta	July 1, 2011	February 27, 2013	Barack Obama
Chuck Hagel	February 27, 2013	February 17, 2015	Barack Obama

Table 27. List of US Secretary of Defense included in this research.

The majority of references came from official government policy documents notably half of all references to *climate change* (19) came from the 2010 *Quadrennial Defense Review* (QDR) with a single reference in the 2008 *National Defense Strategy* (NSS). The remaining references came from nine separate speech-acts; all of these occurred from 2009 onwards. The majority of speeches that referenced *climate change* were given during incumbency of Secretary Gates (five speeches in 2009 containing eleven references and two speeches in 2010 containing four references). Closer examination of these speeches shows that most of these references were attributable to the Deputy Secretary of Defense, William J. Lynn III (eleven of the fifteen). Leon Panetta referenced climate change in two speeches in 2012 and 2013. Climate change was not mentioned in any speech-acts or policy documents examined under Secretary's Rumsfeld or Hagel.

Secretary	Speech-acts	Policies	References to *climate change* in speech-acts	References to *climate change* in speech-acts	Total Sources
Donald Rumsfeld	298	2	0	0	300
Robert M. Gates	365	2	15	20	367
Leon Panetta	122	0	2	0	122
Chuck Hagel	22	0	0	0	22
Total	807	4	17	20	811

Table 28. US Secretary of Defence sources and references to *climate change* (unfiltered).

As noted, a total of 15 passages of text (from 37 references) were coded. All texts coded came from sources published after 2008. Eleven passages were coded as securitised across five categories that included global and regional security, national security, convergence, new security and the Arctic (Table 29). No particular securitised category was considered dominant. Four passages of text were coded from sources published in 2009 and 2010 under two non-securitised categories (*global* and *energy*).

Discussion on climate change in SECDEF sources peaked in 2009 and 2010. The issue was extensively addressed in the 2010 QDR and received partial description in the 2008 NDS. Beyond this, climate change was not a major consideration in the speeches of any Secretaries, with the exception of the Under Secretary of Defense (William Lynn) who, on occasion, stood-in for an absent Secretary Gates. Furthermore, climate change or matters pertaining to the environment more broadly, were not addressed in either the 2005 *National Defense Strategy* (NDS) or the 2006 QDR. This period, particularly under President Bush and Secretary Rumsfeld, was characterised by US strategic efforts toward fighting the 'long war' against terrorism.

Securitised Frame	Rumsfeld	Gates	Panetta	Hagel	Total
International / global	0	2	0	0	2
National	0	0	1	0	1
Convergence	0	3	0	0	3
New security	0	2	0	0	2
Arctic	0	2	1	0	3
Total	0	9	2	0	11

Non Securitised Frame	Rumsfeld	Gates	Panetta	Hagel	Total
International / global	0	1	0	0	1
Energy	0	3	0	0	3
Total	0	4	0	0	4

Table 29. Climate change framing by the office of US Secretary of Defense, 2003 – 2013.

The language used by Secretary Gates (including Deputy Secretary Lynn) and Panetta to describe climate change was predominately neutral (six codes) with a tendency to also frame it as a *challenge* (two codes) or *threat* (three codes). Two passages of text were coded for temporal framing. The first was the portrayal of climate change as requiring a short-term response by the US Department of Defence (outlined by the 2010 QDR). The second was the portrayal of climate change as a long-term pressure (over the next twenty years) that would create greater uncertainty (outlined in the 2008 NDS).

A broad deduction from these results is that climate change was *not* a major consideration in the speech-acts or major strategic policy documents (namely the *National Defence Strategy* and *Quadrennial Defence Review*) of the US Secretary of Defense until at least 2008. From this point onwards, and particularly between 2009 and 2010, climate change was framed as a global and national security issue / challenge / threat that roused military attention, justifying

the military to consider its implications. At no point, were "emergency measures" spoken of, or undertaken, in response to climate change. Nor was climate change framed as an urgent matter requiring immediate military response. To build a more complete picture of US climate securitisation, the following paragraphs will describe its trajectory under each US Secretary of Defense (2003 – 2013) in more detail.

Secretary Rumsfeld

The period under Secretary Rumsfeld was dominated by a focus on transforming the US DoD (away from Cold War structures, capability and culture) and fighting the Global War on Terror (including the proliferation of WMD by "rogue" nations, namely Iraq). A simple indicator of this point was a word search of *Iraq*, *terrorism*, *transformation* and (for comparison) *climate change* in 811 speeches and policies of the Secretary of Defense between 2003 and 2013 (Figure 23). Further evidence is provided by an examination of speeches and policies under Secretary Rumsfeld.
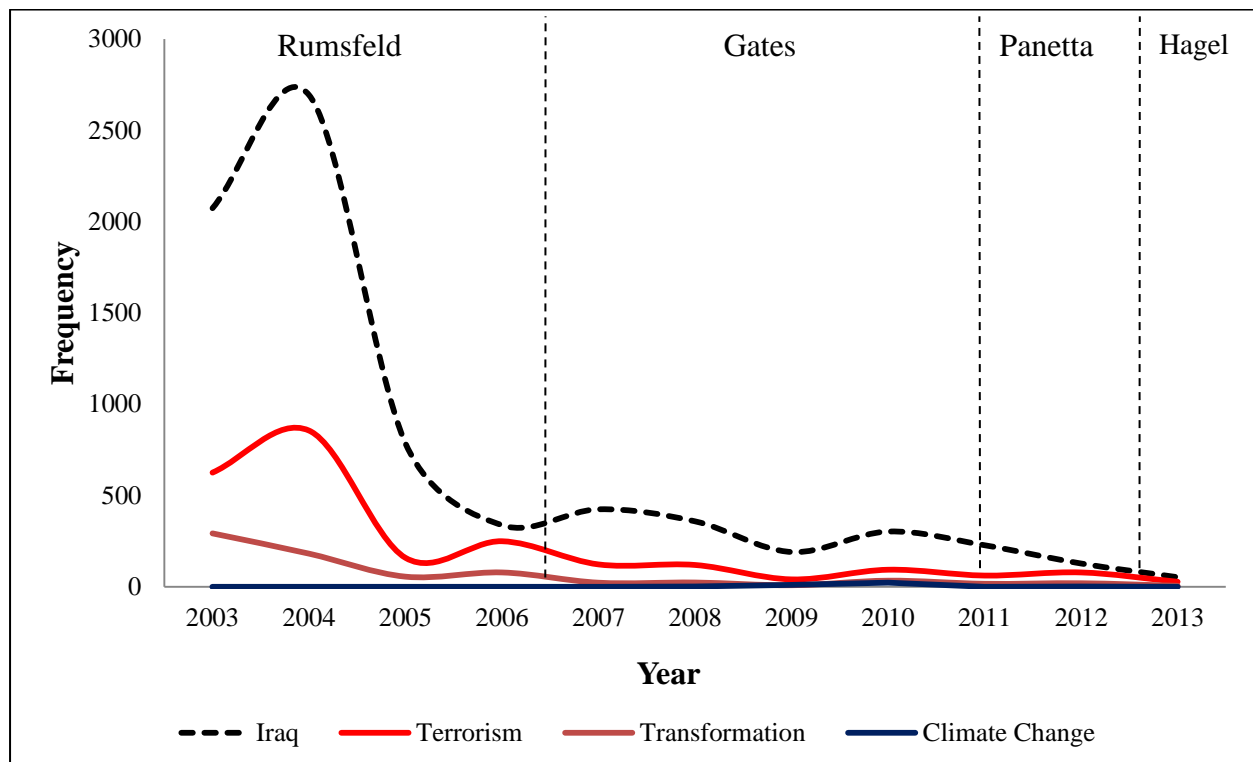
Figure 23. Comparative importance of security issues, Secretary of Defense 2003 – 2013. "Transformation" included data from the 2001 QDR (counted in the year 2003).

The 2001 QDR (developed prior to September 11, but published shortly thereafter) was built around four policy goals: (1) assurance to allies and friends; (2) dissuading future military competition; (3) deterring threats and coercion against US interests; and (4) acting decisively to defeat any adversary. To achieve this, Rumsfeld set out to 'transform' the US Armed Forces by exploiting new approaches to operational concepts, capabilities, structures and technology. The focus on transformation, Global War on Terror and general priorities under Rumsfeld were recorded in a budget speech to the House Armed Services Committee in 2003:

> When our nation was attacked, there was a great deal of pressure to put off transformation – people cautioned, you can't fight the global war on terrorism and simultaneously transform this institution. The opposite is the case. The global war on terror has made transforming an even more urgent priority (Rumsfeld 2003).

Both major strategic documents (the 2005 *National Defence Strategy* and the 2006 *Quadrennial Defense Review*) represented a continuation of these goals. The 2005 NDS highlighted that the security threats of the twenty-first century would be dominated by hard security threats; key drivers being globalisation and the potential proliferation of weapons of mass destruction (US DoD 2005, 1). In this context, the NDS foresaw the main threats to US interests coming from traditional state (military) challenges, irregular challenges (asymmetry), catastrophic challenges (WMD) and disruptive challenges (adversaries who develop breakthrough technologies). Both the 2005 NDS and 2006 QDR also emphasised the US as a nation at war. In the opening line, the 2006 QDR states: 'The United States is a nation engaged in what will be a long war' (US DoD 2006, v). Rather than represent a 'new beginning', the 2006 QDR reinforced that the US military would continue 'transforming along a continuum that reflects our best understanding of [the] world' (ibid). Transformation and a focus on hard security threats remained paramount in the 2006 QDR.

A further aspect of the Rumsfeld period was that climate change was not identified in any speech or policy document as an opportunity, issue, challenge or threat. Indeed, environmental issues more generally, appear to have been given short shrift. Neither the 2005 NDS nor 2006 QDR, for instance, use the term environmental security or similar terms. To be

sure, of the limited environmental references, Rumsfeld noted in a 2003 speech to the House Armed Services Committee on the need to 'clarify environmental statutes which restrict access to, and sustainment of, training and test ranges essential for the readiness of our troops … in the global war on terror' (Rumsfeld 2003). For Rumsfeld, environmental controls would need to be amended, lest they prohibited military readiness in the war on terror.[109] This outlook was firmly intended to be put into practice across the US DoD, as evidenced by a leaked copy of the 2002 Sustainable Defence Readiness and Environmental Protection Act which read:

> Federal departments and agencies shall not place the conservation of public lands, or the preservation or recovery of endangered, threatened, or other protected species found on military lands, above the need to ensure that soldiers, sailors, airmen and Marines receive the greatest possible preparation for … the hazards and rigor of combat (quoted in Floyd 2010, 134).

As noted by the scholar Rita Floyd, under Rumsfeld's leadership 'environmental laws suddenly constituted a risk to, or an obstacle in, the provision of national security' (Floyd 2010, 141). For Floyd, sidestepping environmental rules and regulations in the name of military readiness became policy *du jour*.

Secretary Gates

During Secretary Gates' term, climate change became an issue of some importance (though, still limited compared to other issues). The 2008 *National Defence Strategy* (NDS) was the first official policy document within the SECDEF program to discuss climate change (over the period examined by this research). Under the sub-heading of "The Strategic Environment", climate change was identified as one of five major trends that 'could combine with rapid social, cultural, technological and geopolitical change to create greater uncertainty' (US DoD 2008, 4).

---

[109]   These findings correspond with other scholarly works on the subject. See, for example, Floyd (2010).

The 2008 NDS also noted how converging trends (demographics, resource, environmental and climate pressures) may generate new security challenges. The importance of the energy-climate nexus was also highlighted whereupon it stated that the 'risks will require managing the divergent needs of massively increasing energy demand to maintain economic development and the need to tackle climate change' (US DoD 2008, 5). The 2008 NDS also made reference to the emerging security aspects of climate change, but highlighted the uncertainty surrounding how this would unfold. Overall, while these descriptions represented a small concern in the broader strategic picture, they were a significant departure from the 2005 NDS. Arguably they were at the vanguard of mainstreaming climate change as a legitimate security issue in (formal) US strategic literature following previous attempts by the Clinton Administration in the late 1990s (Brauch 2011b).

One of the most prominent speech-acts addressing climate change by a SECDEF (or a representative) was made by Under Secretary William Lynn in 2009. The speech was made in the context of President Obama's trip to Copenhagen and the anticipated release of the 2010 QDR. Lynn identified climate change as an 'instability accelerant' with the potential to exacerbate existing tensions through 'food and water shortages, increases in the spread of disease, and … migration' (Lynn 2009). The main focus, however, was the energy-climate nexus. In this context, Lynn highlighted the mitigation efforts of the US DoD through 'increasing the energy efficiency of our forces, both in theater [tactical] and at fixed installations [strategic]' (ibid).

By far the most important strategic policy document in the SECDEF program to address climate change (over the period examined) was the 2010 QDR. In total, the 2010 QDR contained nineteen direct references to climate change. As previously noted, the assessment was initiated during the final stages of the Bush Administration via 2008 *National Defense Authorization Act for Fiscal Year 2008*.

The 2010 QDR identified that climate change would impact the US DoD in two broad ways. Firstly, climate change 'will shape the operating environment, roles, and missions that we undertake' (US DoD 2010, 84). It further noted that 'climate-related changes'—such as heavy downpours, rising temperature and sea-level, retreating glaciers, thawing permafrost, lengthening growing seasons, lengthening ice-free seasons, earlier snow melt and altered river flows—were already occurring 'in every region of the world' (US DoD 2010, 84).

Backed by estimates from the US intelligence community and shedding previous strategic uncertainty on the subject, QDR (2010, 85) declared 'climate change *will* contribute to food and water scarcity, *will* increase the spread of disease, and may spur or exacerbate mass migration' acting as an 'accelerant of instability or conflict' (emphasis added). In this context, the 2010 QDR noted the likely increase in demand for HADR operations both domestically and internationally as well as the opportunity to use the moment as a means to undertake 'environmental security cooperative initiatives with foreign militaries' as a 'non-threatening way of building trust, sharing best practices' (ibid). Further operational focus was directed on the opening of Arctic waters and a requirement to 'address gaps in Arctic communications, domain awareness, search and rescue, and environmental observation and forecasting to support [Arctic] operations' (US DoD 2010, 86). These aspects became prominent justifications in US Navy Arctic-climate efforts (see below).

The second way the 2010 QDR noted climate change would impact the US DoD was on facilities and military capabilities. It highlighted the risk to coastal infrastructure, citing the 2008 *National Intelligence Council* report that judged more than 30 coastal installations at risk from rising sea-levels (US DoD 2010, 85). In view of such risks, the 2010 QDR called for a 'comprehensive assessment of all installations to assess potential impacts of climate change', noting a requirement to engage with a range of other government departments to 'assess, adapt to, and mitigate [its] impacts' (US DoD 2010, 85 & 86). Thus, the risk that climate change presented to US military global infrastructure cannot be underestimated. Taken in their totality, the underlying thrust of these assessments spoke of a requirement for the US DoD to begin the process of adapting to the coming impacts posed by climate change. Not surprisingly, these were not for altruistic or "feel-good" reasons, they were commenced on the central premise of ensuring the US DoD could 'operate into the future without decline' (US DoD 2012, 3).

Beyond these assessments, the 2010 QDR focused on the energy-climate nexus which it described as 'inextricably linked'. In this context, the 2010 QDR focused on energy efficiency and energy reduction strategies that would 'improve operational effectiveness, reduce greenhouse gas emissions in support of US climate change initiatives and protect the Department from energy price fluctuations' (ibid, 87). To do this, the QDR identified a range of tactical initiatives (e.g., inclusion of fully burden cost of fuel measures and energy

efficiency targets) as well as strategic initiatives (e.g., the development of large scale on-base renewable energy).

The final observation on the 2010 QDR is that while intimations were made that the US DoD would contribute to national mitigation efforts, the focus remained on ensuring 'mission assurance', improved base 'resilience' and greater 'readiness'. Nonetheless, that the military was even linked to national mitigation efforts represented a major departure from the Bush era.

Secretaries Panetta and Hagel

Limited references to climate change were made in the speeches of Secretary Panetta and none were identified by Secretary Hagel. In 2012, Secretary Panetta noted that climate change posed an 'environmental threat' that constituted 'threats to our national security' (Panetta 2012a). Panetta recited rising sea-levels, severe droughts, melting polar ice caps and more frequent and devastating natural disasters as threats that would 'raise demand for humanitarian and disaster relief' (ibid). The Arctic, energy security and US DoD energy efficiency strategies were all highlighted in the same speech. Although limited in the overall context, the speech did represent something of an escalation in language by a SECDEF to describe climate change. Beyond this, there were no new or additional insights.

Moreover, by late 2012, this research detected in the literature that climate change had peaked as an issue in the minds of senior military leadership and—having already established initial programs in the 2010 QDR—had not much else to contribute to programs underway. The 2012 *Strategic Sustainability Performance Plan* (SSPP) and associated *Climate Change Adaptation Plan* are a good case in point. The SSPP detailed how Departmental energy, climate and sustainability programs were now delegated to the Under Secretary of Defense Acquisition, Technology and Logistics (also badged as the US DoD Senior Sustainability Office). Although the SSPP was not coded by this research, several aspects deserve comment. First, the SSPP set departmental goals to reduce its GHG emissions with the accompanying objective of being 'a US Government leader in reducing Greenhouse Gas Emissions'. Notably, the SSPP excluded the military's operational energy and rather focused on reducing GHG at fixed military facilities and commercial fleets (DoD 2012, I-15) .

Secondly, the *Climate Change Adaptation Plan* represented the first of its type in US military history. Although it was somewhat hidden (attached as an appendix to the SSPP), the *Climate Change Adaptation Plan* rehashed many of the broad aspects already cited in 2010 QDR and NSS, but also elaborated on a range of lower level efforts (both underway and planned). The following specific examples highlight how climate change was, by 2012, being progressively mainstreamed within and across the US Department of Defense (US DoD 2012, 10):

- Incorporating climate considerations into installation-level planning, training plans including formal military training and education.

- United Facilities Criteria (UFC) 2-100-01, paragraph 3-5.6.2.3 required master planners to consider climatic changes (for example, changes in land use and population density in the vicinity of installations; changes in climatic conditions such as temperature, rainfall patterns, storm frequency and intensity and water levels) when crafting long-range installation infrastructure master plans.

- UFC 2-100-01, paragraph 3-5.6.2.3 specifically called out the US *National Climate Assessment* as a source for climate change scenarios.

- The Department's Natural Resources Conservation Program Instruction (DoDI 4715.03) required installation natural resources management plans to assess the potential impacts of climate change on natural resources and to adaptively manage such resources to minimise adverse mission impacts.

Thus, as climate change considerations became mainstreamed across lower levels of the US military, the attention of some senior leaders of the military had moved on. At this point in the narrative, it is worthwhile to provide strategic perspective on why this may have been the case. Largely, two major drivers were reshaping US grand strategy. First, was the ongoing impact of the GFC. Although the military had received an injection of funding via ARRA 2009, it was largely directed toward creating US jobs and stimulating the economy rather than substantively growing the military *per se*. Moreover, funding via ARRA was counter to the larger trend underway from 2010; a transitional decrease in US DoD funding.

Figure 24, obtained from the *National Defense Budget Estimates for FY 2014* published by the Office of the Under Secretary of Defense (COMPTROLLER), shows the growth and then contraction of the US Defense Budget 2000 – 2014 (2013 current $US dollars).[110] The broader point to be made here, for the purpose of this thesis, is that framing climate change as a national security threat did not yield an *increase* in US Defense spending. On the contrary, at the point in time that climate change was identified as a threat, US Defense spending *decreased*. This was in sharp contrast to "emergency measures" enacted during the war on terror, where in FY 2003 US Defense spending alone grew at more than 22 percent.
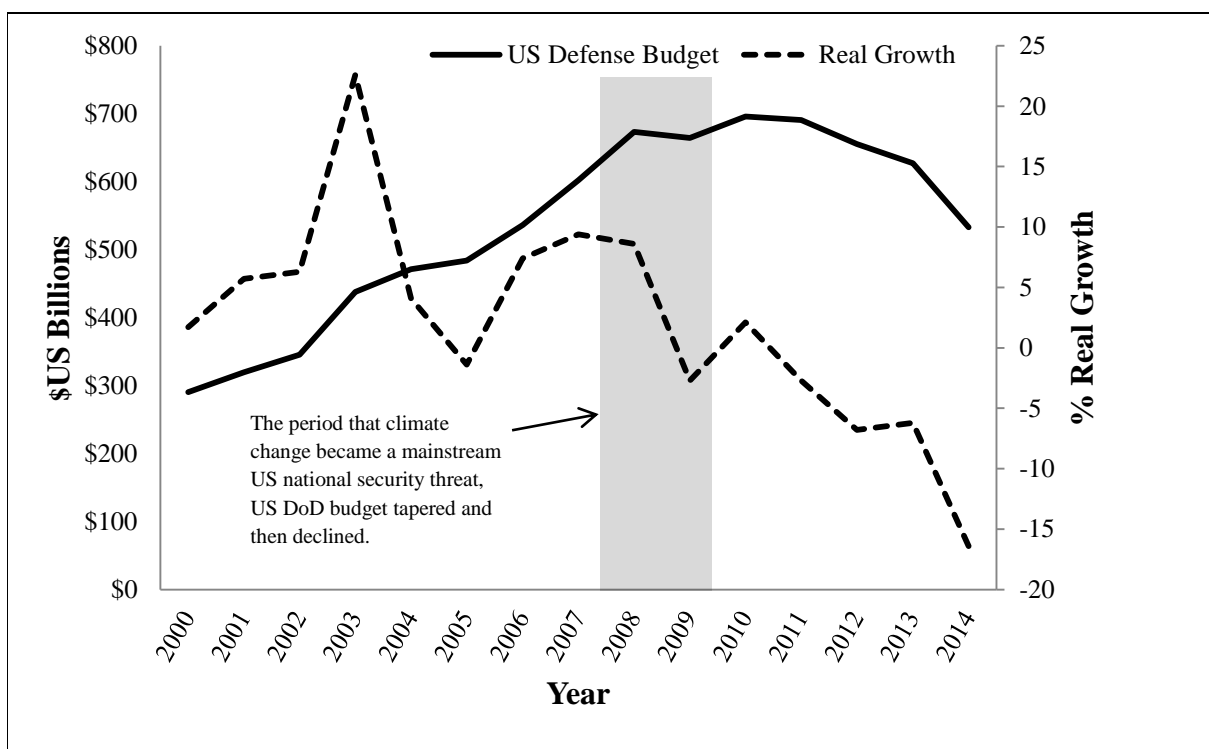
Figure 24. US Defense spending FY 2000 – 2014 (US DoD 2013b, 146 - 148).

The second factor was a strategic rebalance by the US away from the Middle East (end of Iraq War, drawdown in Afghanistan) and toward the Asia-Pacific. The importance of these points on US strategy, and in the minds of the senior US military, cannot be understated. Insight into this thinking was found in a speech by Secretary Panetta to the *Shangri-La Security Dialogue* on 2 June 2012:

---

[110] Not included in these estimates are additional measures brought about by the *Budget Control Act* of 2011 (BCA, Public Law 112-25) which, amongst other actions, set caps on discretionary appropriations through 2021, and included automatic enforcement procedures if pre-defined limits were not met (the automatic cuts were generally referred as 'sequestration').

The purpose of this trip, and of my remarks today, is to explain a new defense strategy that the United States has put in place … and how the United States military supports that goal by rebalancing towards this [Asia-Pacific] region … Before I detail these specific efforts, let me provide some context for our broader defense strategy in the 21st century. *The United States is at a strategic turning point after a decade of war …*

At the same time, the United States, like many other nations, is dealing with large debt and large deficits, which has required the Department of Defense to reduce the planning budget by nearly half a trillion dollars … by the Congress in the Budget Control Act over the next decade. But this new fiscal reality, a challenge that many nations confront these days, has given us an opportunity to design a new defense strategy for the 21st century that both confronts the threats that we face and maintains the strongest military in the world.

This strategy makes clear the United States military, yes, it will be smaller, it will be leaner, but it will be agile and flexible, quickly deployable, and will employ cutting-edge technology in the future (Panetta 2012b; emphasis added).

And so, placed in this broader strategic context, the noted reduction in references to climate change in SECDEF speeches (and, other leaders examined in this case study) reflected the new strategic realities and the fact that substantive action on climate change by the US military was largely underway.[111]

Chairman of the Joint Chiefs of Staff Results and Analysis

Analysis of the Chairman of the Joint Chiefs of Staff (CJCS) program was undertaken on 631 official government sources published between 2003 – 2013 (Table 30 lists the CJCS

---

[111]   Notwithstanding this point, the rebalance to the Asia-Pacific may also portend a stimulating effect US military climate response on account of the fact that the Asia-Pacific region is one of the most at high-risk from climate change. This facet of US military pivot and climate security discourse was considered out-of-scope for this research.

and Table 31 lists source breakdown). The majority of the sources were from 2007 onwards (98 percent).

Chairman	Service	Appointed	Left Office	Serving President
Gen. Richard B. Myers	USAF	1 Oct 2001	30 Sep 2005	Bush
Gen. Peter Pace	USMC	1 Oct 2005	30 Sep 2007	Bush
Adm. Mike Mullen	USN	1 Oct 2007	30 Sep 2011	Bush / Obama
Gen. Martin Dempsey	US Army	1 Oct 2011	25 Sep 2015	Obama

Table 30. List of CJCS examined by this research.

A text search for *climate change* returned seventeen separate sources containing a total of 24 references (filtered). From this, eight passages of text were coded within a securitised context and eight passages of text were coded in a non-securitised context. The majority of references to climate change were attributed to Admiral Mike Mullen (22 references from 13 sources). These all occurred between 2009 – 2011.

Chairman	Source Type			References to 'climate change' in Speech-acts	References to 'climate change' in other documents
	Speech-acts	Other	Total		
Myers	0	8	8	0	0
Pace	0	0	0	0	0
Mullen	499	7	506	19	3
Dempsey	110	7	117	2	0
Total	609	22	631	21	3

Table 31. Breakdown of CJCS sources and references to climate change (filtered). "Other" consisted of policy documents, journals and media.

Of the references that were framed, the language tended to be moderate (e.g., either in a neutral frame or as a challenge). The research did not find an escalation of language (e.g., "threat") as typified by President Obama's language.

Of the securitised passages coded, it was found that CJCS tended to frame climate change across a number of securitised areas; including global security, energy security, as a new security issue, Arctic security and as a convergence of security issues. No one particular category dominated. In those passages coded as non-securitised, climate change tended to be

framed as a global issue above any other. Only one passage of text was coded regarding the timeframe to address climate change (coded under long-term response).

Admiral Mullen provided the most comprehensive views by a Chairman on the subject of climate change. In *Joint Force Quarterly*, Mullen argued:

> Across the Nation, there is a growing recognition of the interconnection between energy, national security, and America's future … For our military, enhancing energy security carries even greater benefit − doing so will reduce risk, improve efficiencies, and preserve freedom of action (Mullen 2011).

In the same article, Mullen added that by enhancing energy security, the military might even 'help stem the tide of strategic security issues' related to climate change. On this, Mullen cited 'far-reaching' consequences including:

> Near the polar cap, waterways are opening that we could not have imagined a few years ago, rewriting the geopolitical map of the world. Rising sea levels could lead to mass migrations similar to what we have seen in Pakistan's recent flooding.

> Climate shifts could drastically reduce the arable land needed to feed a burgeoning population as we have seen in parts of Africa. As glaciers melt and shrink at a faster rate, crucial water supplies may diminish further in parts of Asia.

> This impending scarcity of resources compounded by an influx of refugees if coastal lands disappear not only could produce a humanitarian crisis, but also could generate conditions that could lead to failed states and make populations more vulnerable to radicalization. These troubling challenges highlight the systemic implications − and multiple-order effects − inherent in energy security and climate change (Mullen 2011).

Despite this assessment, the 2011 *National Military Strategy* (NMS) included only a passing reference to climate change within a broad description on the strategic environment. On consideration of the certainty of other strategic documents, the 2011 NMS presented a more cautious tone:

> The *uncertain* impact of global climate change combined with increased population centers in or near coastal environments *may* challenge the ability of weak or developing states to respond to natural disasters (US DoD 2011; emphasis added).

Given the increased prominence of climate change within US strategic guidance during the Obama Administration, the lack of attention on the issue in the 2011 NMS appeared incongruent. However, although it was more than the 2004 NMS (which did not address climate change in any aspect), it reinforced a broader point that by 2011 climate change within the most senior levels of the US military, particularly for the Joint Force Chiefs, did not outwardly register as a priority issue. Moreover, climate change did not appear as a major strategic consideration for the Chairman of the Joint Chiefs of Staff (CJCS). Apart from the article in the *Joint Force Quarterly*, cited above, no major speeches or policy initiatives on climate change were made. The attitude that climate change represented a long-term issue, undeserved of overreach, was characterised by CJCS General Demspey when he chided:

> You can always get people to talk about 2030, 2040, 2050 – assuming we get past, you know, the Mayan prophecy of 2012 in the first place. (Laughter). But you can always get people to talk about 2050, you know, whether it's demographic shifts, climate change. You know, people are willing to talk about that (Dempsey 2011; parenthesis in original).

In separate but similarly dismissive speech, Dempsey added:

> Go to a cocktail party sometime … see if you can get somebody in conversation about 2050. No problem. Talk about global warming …

> life on other planets … But ask somebody about, hey, what do you think about 2020? Crickets (Dempsey 2012).

Striking a more serious tone, Dempsey then identified the 'mid-term' as being the most difficult since present-day office holders would actually be present and accountable for any successes or, more importantly, any failures. In his own words: 'it's intimidating because we actually have the opportunity to shape it, and we're going to own it' (Dempsey 2012). Not surprisingly, outside of these references, this research did not identify any descriptions by Dempsey on the security, economic, social or other implications of climate change.[112]

7.3 US Navy Strategic, Operational and Tactical Programs

This section presents results from the qualitative content analysis of 460 US Navy documents between 2003 – 2013. Specifically, the research analysed four areas/individuals within the US Navy that included the Secretary of the Navy (SECNAV), the Chief of Naval Operations (CNO), the US Navy Oceanographer and the Commander of the Pacific Fleet. The majority of documents analysed were speeches made by the Secretary of the Navy, Chief of Naval Operations and the Commander of the Pacific Fleet. To provide a complete picture and to build a narrative prior to discussion at Chapter eight, inclusion of selected quotes from sources beyond these units-of-analysis are highlighted.

Secretary of the Navy

Analysis of the SECNAV program was undertaken on 214 departmental sources published between 2003 – 2013 (Table 32 lists the SECNAVs considered by this research and Table 33 lists source breakdown). The majority of documents were sourced from 2007 onwards (84 percent). All SECNAV documents analysed were speech-acts.

Secretary	Took Office	Left Office	Serving President
Gordon R. England	1 October 2003	29 December 2005	George W. Bush
Donald C. Winter	3 January 2006	13 March 2009	George W. Bush
			Barack Obama

---

[112] The identification by Dempsey of the inherent challenge to 'own' the 'mid-term' is particularly relevant for climate change since to avoid a $2^{\circ}C$ world, many scientists have identified the period 2010 – 2020 as the *critical decade* to commence emissions reductions.

Ray E. Mabus	19 May 2009	Incumbent	Barack Obama

Table 32. List of US Secretary of Navy considered by this research. The list does not include Secretary Dionel M. Aviles (served 29 December 2005 – 3 January 2006) and Secretary B. J. Penn (served 13 March 2009 – 19 May 2009) since none of their speeches were sourced for analysis.

Secretary	Number of speech-acts examined	References to 'climate change' in speech-acts
Gordon R. England	25	0
Donald C. Winter	61	0
Ray E. Mabus	128	35
Total	214	35

Table 33. Total references to climate change in speeches of US Secretary of Navy, 2003 – 2013 (filtered).

A text search of *climate change* and *global warming* returned ten separate sources containing a total of 35 references (filtered) from 214 speeches. All references to climate change are attributed to Secretary Mabus in years 2009, 2010 and 2012.

These results are consistent with findings in other US programs analysed in which climate change was not a major point of discussion until at least 2007, but mainly from 2009 through 2010. As a case in point, of the 86 speeches by Secretary's England and Gordon between 2003 and 2009 there was no reference to climate change or global warming. The appointment of Secretary Mabus in May 2009 and the associated uptake of climate change in his speeches as well as Navy policy and doctrine reflected the emerging importance placed on climate change by the Obama Administration. As a case in point, within the first two years of Secretary Mabus' appointment, the US Navy published four key documents outlining its organisational stance on climate change and energy: 2009 US Navy *Task Force Climate Change*, 2009 *Navy Arctic Roadmap*, 2010 *Navy Climate Change Roadmap* and 2010 *Navy Energy Vision*.[113]

---

[113] Each of these documents is dealt in further detail under CNO.

Of the 35 references to climate change attributed to Secretary Mabus, nine passages of text were coded within a securitised context and 13 passages of text were coded in a non-securitised context. Of the securitised references, this research identified three areas of focus by Secretary Mabus: the Arctic, as a threat multiplier with a range of other precipitating security factors (convergence), and lastly as an energy security issue. Of the non-securitised references, the majority were coded under matters pertaining to *energy*. In its totality, the energy-climate nexus tended to be the dominant narrative.

The language used by Secretary Mabus to frame climate change was predominately neutral but on multiple occasions he framed climate change as a *challenge*. No instances were identified where Secretary Mabus framed climate change as a *threat*. Furthermore, although no instances were identified where Secretary Mabus directly framed climate change using the word *opportunity*, there is broad evidence that he used the issue to justify the strategic opportunities of advancing his "energy agenda" that included improving energy efficiency, reducing US Navy reliance on fossil fuels and the development of renewable energy to supply US Naval bases. Lastly, few instances were identified regarding temporal framing of climate change. In the most telling quote on the topic, Mabus saw it as a long-term issue: 'we established TFCC to develop policy and investment and force structure recommendations regarding long-term climate change' (Mabus 2012a).

In June 2009, in his first major speech as Secretary of Navy to the *Current Strategy Forum* at the US Naval War College, Secretary Mabus highlighted the need to combat both 'traditional security challenges posed by the military forces of other states' and also 'new, non-traditional, but very dangerous threats' arising from non-state actors as well as '[i]rregular warfare, insurgency, criminal activity, social unrest and low intensity civil conflict' (Mabus 2009a). Secretary Mabus (2009a) also identified 'trends in demographics, climate change, globalization, immigration, and resource availability' as factors that 'will intensify the strain' on nations, particularly those 'least equipped to deal with them'. In this strategic context, Mabus (2009a) argued for a more 'powerful … inventive [and] agile' maritime force capable of 'meeting the challenges' that lay 'beyond the horizons'. He then cited the forthcoming 2010 QDR as justifying a 'major examination of our strategy, [and] how we design and build our forces'. Central to this 'major examination' was a focus on energy:

We must move towards greater energy independence ashore and afloat … Since our operational flexibility and sustainability are directly linked to our energy supplies, energy reliability is a strategic concern for our force.

The potential disruption of our Nation's fuel supplies threatens our ability to perform our missions, and threatens the security of America.

We will move toward alternative energy for two reasons: security *and* diminishing our impact on the environment. … We will have a comprehensive energy strategy to increase conservation, develop alternative energy options and provide secure energy (Mabus 2009a; emphasis added).

In his next major speech on 7 October 2009 to the *International Seapower Symposium*, Secretary Mabus expanded on the 'challenges' of climate change with particular reference to 'a polar region free of [summer] ice' in which 'the security, economic and environmental implications of a Northwest Passage that is open' would increasingly factor (Mabus 2009b). Mabus then proceeded to specifically link the security implications of climate change and energy security concerns as justification to transform the US Navy's approach to energy:

As a result, the global security implications of climate change and energy use will become one of the great challenges for our successors, as they are becoming for us, and *I am committed to placing the US Navy on a path to do something about it*.

I am committed to looking at the way in which our Navy uses power, and committed to taking leadership inside the United States in looking for ways to make our energy use more efficient. I want to … shift to alternative sources of energy in our infrastructure, in our shore management, and in our fleet (Mabus 2009b; emphasis added).

Two days later, in a speech at Jackson State University, Mabus (2009e) emphatically declared 'I am committed as Secretary to addressing climate change and energy

consumption'. On 14 October 2009, Secretary Mabus delivered a pivotal speech in which he prefaced the scale of his solution to addressing these challenges by invoking President Kennedy's 1961 moon aspirations and noting:

> Bold steps are in our nature as Americans and what make us great as a nation; no one has ever gotten anything done by being timid. I'm here to commit the Navy and Marine Corps to meet bold and ambitious goals in energy. I mean this about being bold and ambitious (Mabus 2009d).

Mabus proceeded to announce five energy goals that formed a cornerstone of his tenure as US Secretary of Navy. Describing it as a 'strategic imperative' (2009d), Mabus' energy targets were formalised in the 2010 Navy policy document *Energy Program for Security and Independence* (US Navy 2010a, 3).[114] In November 2009, Mabus identified energy as 'one of the defining issues in my time as Secretary of the Navy' and reinforced climate change as one of the key drivers for energy transformation:

> I see the significant challenges and global security implications of climate change and energy use as one of the great challenges for us, and it's for these reasons that last month I put the United States Navy and Marine Corps on a path to … energy reform (Mabus 2009c).

Noting the US military's significant energy usage ('the DoD uses more than 90 percent of all energy used by the federal government and 2 percent of all the energy used in the United States') as well as its contribution to global warming, Mabus looked 'beyond the military' to:

> … second and third order effects on the environment. The carbon

---

[114] Five energy goals: (1) Energy Efficient Acquisition. Inclusion of specific energy targets and efficiency standards as mandatory requirements in US Naval and Marine corps acquisition contracts. (2) Sail the 'Great Green Fleet'. By 2016, the deployment of a Carrier Strike Group ('Great Green Fleet') composed of vessels powered by nuclear, biofuels and hybrid-electric drives. (3) Reduce Non-Tactical Petroleum use. By 2015, a 50 percent reduction of petroleum use in its commercial fleet. (4) Increase Alternative Energy Ashore. By 2020, to produce 50 percent of shore based energy requirements from alternative energy sources; 50 percent of DON installations to be 'net zero'. (5) Increase Alternative Energy Use DON-Wide. By 2020, to have 50 percent of *total* US Navy energy consumption (including operational fleet of ships, aircraft, tanks, vehicles as well as shore installations) to come from alternative energy sources.

that's emitted from our ships, aircraft, and vehicles is a contributor to global warming and climate change. According to the projections endorsed by our own Task Force on Climate Change, global warming could result in an Arctic Ocean free of summer ice within 25 years. The security implications of this are dramatic. In short, we have not acted as very responsible stewards of our environment (Mabus 2009d).

In addition to 'societal and global obligation to promote a better environment', Mabus (2009c) also considered that the Navy had a requirement to lead the nation on energy transformation, improve its warfighting capabilities and strengthen its energy security by reducing reliance on external sources. Concerned that expanding demand and continued reliance on 'finite' fossil fuel reserves would see 'costs … certainly continue to go up', Mabus (2009c) argued 'military organisations rely too much on fossil fuels'.

In targeting the military's own reliance on fossil fuels, Mabus' energy goals also extended to getting the US Defense industry to deliver more energy efficient capability. On this, Mabus (2010a) also declared the Navy would begin to assess 'how the manufacturers uses energy ... we have to do this because of where this energy is coming from'. For Mabus (2010a): 'The smaller the carbon footprint, the better that manufacturer is going to be in those competitions'. Nothing of this sort had been found in the Australian case study.

In a telling acknowledgement on the criticality of political leadership in legitimating and spurring military action on energy and climate change, Mabus directly credited President Obama as being a:

> [S]pringboard for the Navy and Marines to do more, to go farther, and to take up leadership across the DoD, across the federal government and across the broader United States in developing and using alternative sources of fuels (Mabus 2009d).

He repeatedly derided critics of the program, arguing that the US Navy had historically been at the forefront of previous energy transformations:

> The Navy has always led in the change to new types of energy. In the 1850s from sail to coal, in the early 20th century from coal to oil, and in the 1950s embracing nuclear power as a way to propel our submarines and carriers. Every single time that this was done, there have been naysayers and there have been doubters … Every time, every single time, these naysayers have been wrong, and we have been a better Navy and better war fighters because of it. And I'm absolutely confident that's going to be the case now (Mabus 2010a).

Despite this, as criticism mounted and as the US Defense budget tightened, US strategy shifted and following political failure at Copenhagen, Mabus progressively changed emphasis away from justifying energy transformation on environmental and climate change grounds. Instead, Mabus began to focus his reasons on more practical (traditional) grounds, by stressing the strategic and tactical (warfighting) benefits. A turning point was reached in April 2010 when, at the Center for Naval Analysis, Mabus conceded that using climate change as part justification for energy transformation tended to be too distracting:

> I think as this debate unfolds about things like climate change, things like the effect of fossil fuels on America and on the world, that if we make this debate one of energy independence for America, and national security for America and for our armed forces, it is a debate that we are going to win. It's a debate that the American people can unify behind.

> *I think our chances are less certain if we base it on what to most people are a little more nebulous ideas like climate change – harder to see, harder to understand and harder to qualify* (Mabus 2010a; emphasis added).

In the context of events, these comments represented an important change in tactics that, as will be seen, filtered downwards throughout the US Navy.

With or without this change of justification, Mabus faced heavy criticism. In one withering critique, Senator John McCain (R-Az.) on July 27, 2012 wrote:

> Your misrepresentations of the provisions threatens the credibility of
> the senior Navy leaders you have ordered to advocate on behalf of a
> speculative program that does not address the core needs of the Navy
> or the Marine Corps … You are the Secretary of the Navy, not the
> Secretary of Energy (McCain 2012).

In 2012, a senior member of the Senate Armed Services Committee and prominent climate change denialist, Senator Jim Inhofe (R-Okla.) accused Mabus of risking military readiness, citing 'grave concerns about the cost of 'greening' our military' (Inhofe 2012c) and—more broadly—the 'Obama Administration's attempt to force its liberal green agenda through the Department of Defense' (Inhofe 2012a, b). In 2011, RAND Corporation published a report (*Alternative Fuels for Military Applications*) which concluded that 'the use of alternative fuels offers the armed services no direct military benefit' and that efforts should rather be directed towards 'using energy more efficiently in weapon systems and at military installations' (Bartin and Bibber 2011, xix). RAND argued that these findings were consistent with other high level reports previously published by the Defense Science Board and the JASON Defense Advisory Group.[115]

In both realisation and response, Mabus' justification for making US Navy energy transformation began to increasingly coalesce around "hard" strategic imperatives (energy independence, national security, reduced operating costs, aiding US agricultural sector through promotion of biofuel markets) and tactical imperatives (decrease fuel demand at forward operating bases, offering warfighters greater endurance and reducing fuel convoys). This facet was reflected in *Energy Program* which directly cited two priorities for Naval energy reform as 'Energy Security and Energy Independence' (US Navy 2010a, 2).

The trend was also reflected in speech-acts made by Secretary Mabus. This research found *no* direct references to climate change or global warming in Secretary Mabus speech-acts throughout 2011 and just four references in 2012.[116] Gradually, climate change and

---

[115] The US military has a long history of seeking to reduce its energy requirements (as described in CRS 2009). For other examples, see *Report of the Defense Science Board Task force on DoD Energy Strategy: More Fight – Less Fuel*, February 2008.

[116] Although, in 2012 at the *Global Conference on Oceans, Climate and Security: Making the Connections*, Mabus detailed the risks of climate change, but without actually uttering the words 'climate change'.

environment considerations were airbrushed out of the US Navy's energy transformation narrative. Initially it depended on which audience Mabus addressed, but increasingly, climate change was framed as a bi-product or secondary side effect. In May 2012, during a speech at the *Global Conference on Oceans, Climate and Security: Making the Connections*, Mabus argued:

> We're doing it all for one underlying reason. We're doing it to be a better military. We're doing it to be better war fighters. And that has some great side effects. It makes us better stewards of the environment at the same time, makes us better stewards of the ocean (Mabus 2012a).

By October 2012, at the *Naval Energy Forum*, Mabus had removed any reference to climate change or the environment in a lengthy speech outlining his energy initiatives:[117]

> We're doing what we're doing, and we're leading in what we're doing because it increases national security and, I would argue, increases international stability. It reduces the impact of price spikes on military readiness and on our procurement, and it can save lives (Mabus 2012b).

Ultimately, (environmental) idealism appeared to give way to (national security) realism:

> The Great Green Fleet is not about some environmental agenda. *It is about maintaining America's military and economic leadership across the globe in the 21ˢᵗ century* (Mabus 2012c; emphasis added).

Briefly, three other points in relation to Secretary Mabus' energy-climate strategy warrant attention. Firstly, as US military budget cuts began to take effect, Mabus increasingly justified his energy transformation as ultimately saving taxpayers money for reinvestment

---

[117] The general trend in the US to downplaying climate security matters was also evident through the closure of the CIAs 'Center on Climate Change and National Security' in late 2012. See http://www.judicialwatch.org/blog/2012/11/cia-quietly-closes-global-warming-unit/.

into alternate areas of capability.[118] Along these lines, he also regularly cited that the US Navy would contribute to national economic aims by helping to establish a domestic, commercially viable biofuel industry ('as we build demand, supply will come'), which would 'provide energy independence and American jobs' (Mabus 2012c). Secondly, the organisational penetration of Mabus' energy strategy became increasingly evident through a range of initiatives aimed at changing the Navy's cultural attitude toward energy use. Though many of these initiatives already existed, Mabus sought to extend these far deeper into the organisation. The direction that 2014 officer promotions would be tied to performance in contributing to energy resource management measures provided an example of this (Mabus 2012b).

Lastly, analysis of Mabus' speeches indicated that climate change *was* invoked as a near-term driver of US Navy capability and force structure. This was particularly evident in relation to the Arctic. Clear indications of climate change as a force structure / capability determinant is evident in the US Navy *Task Force Climate Change*, *Arctic Roadmap* and *Climate Change Roadmap* (analysed under 'CNO', see below) as well as Mabus' speech-acts. As Mabus described it:

> … the short answer is, we need a bigger fleet to do what we do today,
> but if you have things like an ice-free Arctic, you will need additional
> ships to make sure that you do that correctly (Mabus 2010b).

Summary of SECNAV Program

In summary, although these latter examples indicate forms of organisational adaptation to climate change, the vast concentration of effort under Secretary Mabus can be best described as mitigation through reducing energy consumption and improving energy efficiency. More specifically, while climate change was initially framed as one of the reasons

---

[118]   Mabus regularly cited a number of 'practical' examples of how his energy transformation would save money, resources and lives. One example was USS MAKIN ISLAND which was described as the 'Prius of the seas', a 'hybrid ship' operating on electric-diesel engines which saved US$15 million in fuel on its first deployment. Other Naval examples included the use of 'stern flaps' and different hull coatings both used to limit drag. Other examples included the naval fighter 'green hornet', Marine LED combat lighting, solar blankets and solar generators at forward operating bases. The references may be found in many of Secretary Mabus speeches across the period 2009 – 2013.

to reduce emissions it was progressively removed from the justifying narrative on the grounds it exposed Secretary Mabus to critics ideologically and politically opposed to climate change. It also roughly coincided with Obama's failure to get his climate change initiatives through Congress and failure at Copenhagen. Justification for US Navy energy transformation thus came to rest on more practical, hard-power reasons associated with advancing the national interest and warfighting capabilities. The framing and justification of climate change as a force structure and capability determinant for the US Navy will be explored in further detail in the next section.

Chief of Naval Operations (CNO)

Analysis of the Chief of Naval Operations (CNO) program was undertaken on 201 departmental sources published between 2003 – 2013 (Table 34 lists the CNOs considered by this research and Table 35 lists source breakdown). All documents (except one) were sourced from 2005 onwards.[119] The majority of documents analysed were speech-acts (95 percent) with the remainder ("Other") sourced from a combination of doctrine, media interviews, policy and journal articles.

CNO	Appointed	Left Office	President
ADM Vern Clark	21 July 2000	22 July 2005	Bush
ADM Michael Mullen	22 July 2005	29 September 2007	Bush
ADM Gary Roughead	29 September 2007	23 September 2011	Bush / Obama
ADM Jonathon Greenert	23 September 2011	18 September 2015	Obama

Table 34. List of US Chief of Naval Operations (CNO) 2000 – 2013.

Chairman	Source Type			References to *climate change* in Speech-acts	References to *climate change* in other documents
	Speech-acts	**Other**	**Total**		
Clark	0	1	1	0	0
Mullen	64	1	65	0	0
Roughead	97	7	104	32	181

---

[119]   CNO Program, Year (number of sources): 2005 (17), 2006 (29), 2007 (22), 2008 (13), 2009 (39), 2010 (29), 2011 (22), 2012 (26) and 2013 (3)).

Greenert	30	1	31	0	0
Total	191	10	201	32	181

Table 35. Total references to climate change in speeches and policy of US CNO, 2003 – 2013 (unfiltered).

A text search of *climate change* and *global warming* returned 26 separate sources containing a total of 213 references (unfiltered). All references to these terms (with one exception) occurred between 2009 – 2011. The exception included two references contained in a 2007 naval doctrine publication *A Cooperative Strategy for the 21st Century Seapower* (CSP21). All references to climate change in this program occurred during the appointment of Admiral Roughead. As expected, the majority of references occurred in Naval policy documents including the 2009 US Navy *Task Force Climate Change* (34 references) and the 2010 US *Navy Climate Change Roadmap* (145 references). Beyond this, the majority of references (32 in total) occurred in 21 separate speeches made by ADM Roughead across 2009 – 2011. Broadly, about one-fifth of all speeches analysed for ADM Roughead in his appointment as CNO contained one or more references to climate change.

These results are largely consistent with previous findings that show climate change was not a major point of discussion until at least 2007, but mainly from 2009 through 2011. On this point, no references to climate change were found in the speeches analysed during the appointment of ADM Greenert (although subsequent to the data collection phase a speech was found in which he discussed it at length in 2011 as the Vice Chief of Naval Operations).[120]

Of the 213 references to climate change, 25 passages of text were coded within a securitised context and seven passages of text were coded in a non-securitised context.[121] Of the securitised references, this research identified three areas of focus by ADM Roughead: the Arctic, as a threat multiplier with a range of other precipitating security factors (i.e.,

---

[120]   This aspect raised a limitation with the research method. Moreover, by 2011 the US military had commenced its response to climate change, evident through the various adaptation / mitigation plans. Thus, the most senior leaders in US Defense had delegated responsibility. It is highly plausible that while senior leaders examined in this study were no longer 'talking' about climate change, that lower level commanders and administrators were (i.e., those who now had responsibilities to see the plans through).
[121]   Although there were 213 distinct references to the term 'climate change'/ 'global warming', coding rules were strictly applied so that the vast majority of references in the two major climate policy documents did not skew results.

convergence), and lastly as a general / national security issue. Of the non-securitised references, climate change was found to be mainly framed as a generalised issue or under matters pertaining to energy.

Language used to frame climate change was predominately neutral but on several occasions climate change was cast as a challenge. No instances in the CNO program were identified where climate change was framed as a threat. Only three passages of text were coded that identified the temporal framing of climate change (one was urgent while the remaining two were long-term). A broad observation from these findings is the shift, or rather de-escalation, in rhetoric used to frame climate change compared with President Obama. It pointed to a divergence between the emergency language of the president on climate change and the benign language of operational military commanders.

The earliest identified discussion of climate change under the CNO program occurred in CSP21. This document is noteworthy for two reasons. First, it anticipated the Arctic as a region of 'opportunity' such that climate change would 'gradually [open] up the waters of the Arctic … to new resource development, but also to new shipping routes' (US Navy 2007, 6). Conversely, the strategy noted a potential negative risk to Arctic warming such that there existed 'potential sources of competition and conflict for access and natural resources' (US Navy 2007, 6). The dual nature of climate change acting as either an opportunity or as a challenge/threat in relation to the Arctic became an increasing feature of the US Navy narrative, built upon on by the annual *Arctic Symposium* (since 2001) and culminating in the publication of US Navy *Arctic Roadmap* in 2010. The second observation is that CSP21 linked climate change to concepts of human security by declaring:

> The effects of climate change may also amplify human suffering
> through catastrophic storms, loss of arable lands, and coastal flooding,
> could lead to loss of life, involuntary migration, social instability, and
> regional crisis (US Navy 2007, 7).

This represented an early articulation of the breath and scale of the threats posed by climate change and was considered a rare occurrence under the auspices of the Bush presidency and its attendant focus on the War on Terror.

Speeches made by ADM Roughead on climate change also highlighted the scale of threats posed by climate change. He framed climate change as both a current and long-term issue. On one occasion at least, Roughead indicated it required a 'sense of urgency' (Roughead 2010d). In 2009, addressing the *Current Strategy Forum*, ADM Roughead further noted that climate change was already 'upon us' and affecting 'everything from weather pattern shifts to changes in the ice caps … water densities and salinity to transit routes' (Roughead 2009). As was found during coding, ADM Roughead regularly framed climate change as part of a broader convergence of issues that would impact security. In many respects, he adopted a neo-Malthusian outlook: 'The limited access to fresh water, dwindling agricultural yields, the overfishing, mass migrations, climate change will continue to stress the global order' (Roughead 2010d). In this context, Roughead was touching on a frame that also dominated broader US thinking on climate change by presenting it as a 'threat multiplier'.

ADM Roughead (and the US Navy more broadly) also worked to pro-actively position the US Navy as the leading service in its response to climate change. This was manifest in five major initiatives spearheaded by the office of the CNO (ADM Roughead) between 2008 and 2011. Firstly a 2008 request to the National Academy of Sciences to conduct a comprehensive study on the national security implications of climate change for US naval forces (delivered in 2011), secondly the 2009 *US Navy Task Force Climate Change*, thirdly the 2010 *Arctic Roadmap*, fourthly the 2010 *Energy Roadmap* and lastly the 2010 *Navy Climate Change Roadmap*.[122]

What emerged from coding and analysis of these policies and through the speech-acts of ADM Roughead was an overarching strategy to leverage the threats and opportunities presented by climate change to position and strengthen US Naval capabilities in pursuit of the US Navy maritime agenda, as articulated in CSP21, and also in support of US national interests (as presented in the 2010 QDR). Furthermore, there is some evidence to suggest that the US Navy sought to promote climate change (amongst other strategic issues) as an opportunity to bulwark—indeed, strengthen and grow—itself during a period of US military austerity. From a political perspective, the timing of the US Navy climate policy initiated by the CNO is important since its demand for increased resources to meet threats and

---

[122]   The Naval Studies Board Report was not included in the source document coding, but was included in the thesis discussion. The report was not considered for coding since it existed outside any of the programs analysed in this research.

opportunities posed by climate change was likely to be viewed more favourably by an Administration and Secretary sympathetic to the need for climate action and ideologically aligned to the cause more generally. Confidence in this assessment—and an endorsement of US Navy climate strategy vis-à-vis other agencies—was strengthened when President Obama specifically singled out the US Navy for additional funding on renewable energy initiatives in his 2012 State of the Union Address (Obama 2012a) .

Nonetheless, the profusion of climate policy activity across 2009 – 2011 by the US Navy can only be truly assessed against broader US national-strategic and global orchestrations. Described earlier: cessation of US military operations in Iraq (2010), drawdown in Afghanistan (2013), 'rebalance' by the Obama Administration of a US strategic posture orientated toward Asia-Pacific (2012) and—prominently—an overall reduction in current and planned US military expenditure (circa 2010). Thus, although ADM Roughead was a parochial advocate for an increase in budget, the larger picture presented a sharp decrease in real growth Naval funding (US DoD 2013b, 161 - 162).[123]

Deeper examination of the CNO program revealed a US Navy climate policy that can be assessed under the two broad areas of adaptation and mitigation. In terms of adaptation, the US Navy (via the CNO) developed climate policies primarily focused on adapting its force structure and capability as a consequence of physical environmental changes being wrought by climate change. Although the majority of this effort was directed toward enhancing US Navy Arctic capabilities it was also extended to other regions. In terms of mitigation, the CNO from 2009 onwards was principally responsible for delivering the Secretary of Navy energy goals. Arguably, although climate change formed part-justification for these mitigation efforts, other key drivers remained dominant (cost cutting and savings measures, opportunity for re-investment, opportunities for new capability, opportunities to enhance war-fighting).

Two months prior to the election of President Obama, ADM Roughead wrote to the President of the National Academy of Sciences requesting that the National Research Council's (NRC) Naval Studies Board (NSB) conduct a comprehensive study on the national security implications of climate change for US naval forces. From the moment of request to point of

---

[123] For instance, US Navy real growth in parenthesis: 2011 (-1.3), 2012 (-3.2), 2013 (-3.4), 2014 (-10.6).

delivery, the report spanned four years (2008 – 2011). By this stage, however, ADM Roughead had already been active in directing internal Navy resources along similar terms of references.

On 15 May 2009, for instance, ADM Roughead directed the US Navy Oceanographer to establish and lead a Task Force Climate Change (TFCC) that would 'recommend policy, strategy, roadmaps, force structure and investments for the Navy regarding the Arctic and Climate Change' (US Navy 2009a, 2). Although the strategy focused on the Arctic, it extended its remit to examine broader implications concerning how the Navy would adapt, mitigate and assess the 'extent, timing and impacts' of climate change across its organisation. The breadth of the directive was significant: every functional area of the Navy ('N-code') was required to deliver against a range of specified tasks (US Navy 2009a). Likewise, was the penetration of TFCC. As a case in point, the directive identified the formation of an executive level Naval Climate Change Coordination Office (NCCCO) responsible for coordinating working groups across middle management (O5 and O6). Far from being a 'nebulous' issue, climate change had in fact become a very real, day-to-day, practical requirement for US Naval staff officers.

Of special significance in TFCC was a requirement for Navy staff to be on the lookout for new opportunities that might advance US Naval capabilities. A case in point was a request by the TFCC for the TFCC Executive Steering Committee to expressly 'advocate for Navy Arctic and climate change goals, objectives and funding' (US Navy 2009a, 4). Working groups were likewise directed to consistently look for new opportunities in areas of capability, training, operations, missions, strategy, research and engagement / cooperation. TFCC concluded by re-assuring those involved that Naval climate policy would be backed by a 'strategic communications outreach program' that included a campaign in which the Navy's senior leadership group would 'develop and maintain talking points … regarding the changing Arctic and Earth's climate' (US Navy 2009a, 7 - 8). Placed in context, the TFCC represented a stepping stone toward the development of the US Navy *Arctic Roadmap* and then *Climate Change Roadmap*.

On the Arctic, ADM Roughead consistently framed climate change as *the* major issue re-shaping its geography, economy, international relations and security. In a 2011 speech, *Active In the Arctic Seminar*, Roughead enthused:

> Well in my mind, there is a phenomenal event taking place on the
> planet today, and that is what I call the opening of the Fifth Ocean;
> that's the Arctic Ocean. We haven't had an ocean open on this planet
> since the end of the Ice Age. So if this is not a significant change that
> requires new, and I would submit, brave thinking on the topic, I don't
> know what other sort of physical event could produce that (Roughead
> 2011a).

On the specific challenges and opportunities of climate change in the Arctic, ADM Roughead
listed a progressive and increasing requirement in the near, medium and long-terms:

> [T]he first push up into the Arctic will be for fishing, as the fishing
> stocks migrate with the cooler water, or they'll start to move up
> toward the Arctic. So I think you'll see increased fishing activity up
> there, probably see some eco-tourism …
>
> Then I believe you've going to see a push into the extraction of
> resources from the bottom, or even, you know, beneath the bottom.
> That probably will be taking place in the next 10 years or so. And then
> … profitable trade routes is about maybe two decades out (Roughead
> 2010a).

In a separate speech, Roughead depicted findings from an earlier 2008 US Geological Survey
Report, *Circum-Arctic Resource Appraisal*, which brought the Arctic's significant resource
potential into national prominence. Emphasising a requirement for the US Navy to position
itself to advance US Arctic resource interests, Roughead proceeded to argue:

> … efforts are already underway, and not just among the Arctic
> nations, to seize the economic potential of a region estimated to
> contain 22% of the world's oil and natural gas resource base, and
> trillions in economic potential (Roughead 2011b).

In this context, Roughead sought to invoke concepts of strategic competition, intimating:

> I don't find it coincidental that China, a nation with previously no claim on Arctic waters, has called for universal access rights to increasingly navigable arctic waters (Roughead 2010c).

At large, Roughead argued that climate change was causing a strategic re-appraisal of US Navy role in the Arctic. He envisioned it as an area of distinct opportunity for the US Navy:

> Because at a fundamental level, the trends point undeniably towards a new venue of operations and responsibility for our global Navy – for preserving American interests in free and fair access there – and in light of this we remain committed to preparing exhaustively for the challenges and especially for the opportunities that are going to exist in an ice-diminishing Arctic (Roughead 2011b).

In framing climate change as one of several new factors shaping the strategic environment, Roughead (2010b) was 'blatantly and shamelessly parochial' in consistently arguing for a larger navy to advance US national interests through the maintenance of an orderly and stable maritime commons. Lamenting US 'sea blindness', Roughead argued that the US Navy had failed to grow its fleet during the decade-long upsurge in Defence expenditure experienced under the Bush Administration's War on Terror. Thus, juxtaposed against the dawning era of 'compressed defense budget[s]', Roughead argued that the emerging new order required '*more* naval power' (Roughead 2010b; emphasis added). Though climate change was cited as one of many reasons for this requirement it did, on occasion, become tenuous. In one instance, Roughead (2010b) even went so far as to link naval expansion plans on the somewhat incredulous idea that 'there is a lot of area we need to cover and when you consider the changes in the Arctic the oceans will only increase in size'.

In advocating for more naval resources ('because I'm the CNO I can say things like that') Roughead spoke with conviction on the requirement for US Navy climate change adaptation (Roughead 2010b). In one such speech, he identified several areas including in national policy (specifically US ratification of UN Convention on the Law of the Sea Treaty), naval communications architecture, naval ship design, military exercises as well as in areas of international maritime cooperation.

US Naval climate adaptation efforts were overtly addressed by ADM Roughead in 2009 and 2010 when he commissioned the *Arctic Roadmap* and *Climate Change Roadmap*. Noteworthy for their scale, the *Arctic Roadmap* alone identified 35 distinct action items across five functional areas of US Navy bureaucracy, including (1) Strategic policy, Missions and Plans; (2) Operations and Training; (3) Capability Investments; (4) Strategic Communications and Outreach; and (5) Environmental Assessment and Prediction.

An indication of the program's scale was revealed under "Capability Investments". Listing five specific sub-action items, "Action item 3.2" directed a 'capabilities based assessment for Naval Arctic capabilities' that included but was not limited to, 'current and required capability to execute undersea warfare, expeditionary warfare, strike warfare, strategic sealift, regional security cooperation, HA/DR, and DSCA … C4ISR capability … current and required infrastructure, installations, and facilities in the region' (US Navy 2009b, 14). Put simply, in this single example, the US Navy sought to review its entire Arctic capability portfolio in response to the rapidly changing Arctic climate.

Although the outcomes of this analysis are not accessible to the public, other action items are more readily traceable. What is important at this point, is to appreciate how strategic guidance translated into policy response which generated 'action items' and 'metrics' that delivered operational and tactical outcomes. It was the bureaucratisation of strategic direction; *ends* articulated into operational policy (*ways*) to becoming implemented by tactical *means*. Also, as has already been shown, since there was no additional funding allocation to the US Navy, resources for these initiatives came from existing budgets. This indicated a level of prioritisation that climate change had previously not held.

Under the area of "Environmental Assessment and Prediction", for example, action item 5.7 directs the biennial production of an *Arctic Environmental Assessment and Outlook Report* to 'inform Navy policy, strategy and investment decisions' (US Navy 2009b, 24). Published in August 2011, the report noted that the IPCC reports are insufficient since the 'refresh rate is too long to meet the budget POM cycle' (US Navy 2011, v). The report proceeds to compile a detailed description of the state of the Arctic environment, the changes underway as a consequence of climate change and concluded with a detailed list of the operational challenges and opportunities for the US Navy. Despite the fervour, the assessment also

portended a more tempered approach by US Navy on climate change by warning 'the Arctic will still remain a difficult and dangerous operating theater … it is doubtful that the Arctic will shift much of Navy's attention from current deployment patterns' (US Navy 2011, 22).

This degree of caution, however, was not evident in the 2010 *Climate Change Roadmap*. Considered an 'extension to the Navy Arctic Roadmap' to be superseded by the 2014 QDR, the opening statement is noteworthy for the both the currency and confidence of climate change impacts:

> Climate change *is* a national security challenge with strategic implications for the Navy. Climate change *will* lead to increased tensions in nations with weak economies and political institutions. While climate change alone is not likely to lead to future conflict, it may be a contributing factor. Climate change *is* affecting, and *will* continue to affect, US military installations and access to natural resources worldwide. *It will affect the type, scope, and location of future Navy missions* (US Navy 2010b, 3; emphasis added).

Similar in format to the *Arctic Roadmap*, the *Climate Change Roadmap* specified three phases across four years in areas of strategy, operations, capability, communications and environmental assessment. Again, the broad conclusion from the *Climate Roadmap* was the scale of organisational response by the US Navy regarding climate change. This aspect was well captured by the Roadmap objectives, which sought the following effects (US Navy 2010b, 3):

- The Navy is fully mission-capable through changing climatic conditions while actively contributing to national requirements for addressing climate change.

- Naval force structure and infrastructure are capable of meeting combatant commander requirements in all probable climatic conditions over the next 30 years.

- The Navy understands the timing, severity, and impact of current and projected changes in the global environment.

- The media, public, government, Joint, interagency, and international community understand how and why the Navy is effectively addressing climate change.

- The Navy is recognised as a valuable joint, interagency, and international partner in responding to climate change.

Moreover, the *Climate Change Roadmap* related not just to improvements in Navy's understanding on the long-term impacts of climate change (such as force structure and capability), but also more short term (intangible) aspects such as how it is perceived by, and related with, a broad selection of stakeholders. These facets underline how the US Navy sought to leverage climate change as an opportunity to improve its institutional standing and advance cooperative measures enshrined in CSP21. This was recognisable throughout the *Climate Change Roadmap* wherein the Navy sought opportunities to 'formalise cooperative relationships', 'initiation of intergovernmental, multilateral and bi-lateral activities', 'form new and expand existing cooperative agreements' as well as 'develop and strengthen partnerships' with a range of other public agencies, private entities, foreign militaries and NGOs on a range of climate change matters (US Navy 2010b).

Less prominent, but worthy of comment, was the identification of a number of operational risks posed by climate change including the opening of the Arctic and sea level rise reducing port availability for refueling and resupply, increasing requirement for earthmoving projects and changes in ability of critical resource storage. Somewhat rare in public military discussion on climate change was also a direction to monitor areas of uncertainty including ocean acidification, abrupt climate change and geo-engineering.

The final point to be made on both the *Climate Change* and *Arctic Roadmaps* is that both were scheduled to be incorporated into Navy's *Program Objective Memorandum* for FY-14 (POM-14). This is a significant point, since it signified the timeframe when the US Navy would actually commence funding the recommendations made as a consequence of both roadmaps. Furthermore, that climate change considerations were factored into the US Navy Planning-Programming-Budgeting-Execution (PPBE) process at all indicated a level of legitimacy regards the challenges posed by climate change but also that these challenges were *not* considered exceptional or urgent. Moreover, viewed in the broader US DoD acquisition

model, the roadmaps represented a start point (Planning Phase) that was designed to identify and prioritise the risks posed by climate change for progressive remediation through *normal* military budgetary cycles commencing in FY-14.

Finally, both the strategic and tactical implications of climate change on the US Navy were expanded by the 2011 Naval Studies Board report, *National Security Implications of Climate Change for US Naval Forces*. This report represented the most comprehensive publicly availably assessment of the impact of climate change on the US Navy. On the basis of the extensive terms of reference, it is reasonable to suggest that the findings made in this report were unlikely to differ significantly from those found through internal Navy processes as articulated in the roadmaps. It is therefore, worthwhile to highlight the reports major findings, and an abbreviated version is included at Appendix 3-3.

Although *Climate Change Roadmap* can broadly be described as articulating US Navy adaptation, its strategic direction regarding climate mitigation was specifically addressed in the Navy's energy strategy (*A Navy Energy Vision for the 21st Century*), developed by *Task Force Energy* established under ADM Roughead in 2009. *Energy Vision* represented the start point for Navy's operationalisation of Secretary Mabus' energy goals (*Energy Program for Security and Independence*).

Even though climate change mitigation was cited as a part-justification for improving the Navy's use of energy, the main focus undoubtedly remained enhancing US Naval energy security. Not surprisingly, this correlated strongly with views espoused by Secretary Mabus. In the opening statement in *Energy Vision*, ADM Roughead cited record oil prices in 2008 as a 'glimpse of an energy future … [in which] ever-rising costs and [cause of] strategic vulnerability' to the Navy (Roughead quoted in US Navy 2010c, 1). The bottom line became apparent when it surmised: '[f]or the Navy, high [oil] prices and price volatility pressurize budgets that could otherwise go to increased capability' (US Navy 2010c).

Moreover, climate change was *a* factor, but it was not *the* factor. Indeed, it was more a strategic benefit than a key driver. Thus, despite the apparent fervour surrounding Navy's efforts on climate *adaptation*, its rhetoric on contributing toward national climate change *mitigation* efforts was more subdued. Leaving no doubt, *Energy Vision* reinforced this point by declaring:

Virtually all investments the Navy makes in energy efficiency and alternative energy [are] for the primary purpose of energy security and enhanced combat capability [but] will also serve to reduce greenhouse gas emissions (US Navy 2010c, 2).

Once again, this line reflected a change in rhetoric that drew justification of energy transformation away from 'nebulous' climate change toward 'unifying' concepts of energy security and enhanced war-fighting.

The reduced role played by climate change in US Naval leadership rhetoric was reflected in research results that showed climate change was not cited by ADM Roughead's replacement, ADM Greenert, in 30 speeches given from late 2011 through mid-2013 (though instances were found where he discussed it at length as *Vice* Chief of Naval Operations, prior to his appointment as CNO). Furthermore, while numerous examples were found supporting energy reform being progressed downwards through the Navy's bureaucratic structure, few instances were found regarding equivalent climate change initiatives. As noted by ADM Greenert, the US Navy 'energy strategy is much more mature than our climate strategy' (Greenert 2011, 24). Selective examples of energy reform proliferating through Navy structures included:

- OPNAV Energy Instruction (22 Jun 2012). Directs administrative action from strategic through tactical commanders for US Navy shore establishments regarding Navy energy goals.

- 2014 Officer Selection boards to include consideration of those officers who have excelled at energy resource management.

- Great Green Fleet lead-in training and exercises in anticipation of sailing the green fleet in a major military exercise in 2016. And;

- Partnerships with other government agencies and industries in the development of bio-fuel supply.

Summary of CNO Program

Having analysed the speeches and policy of the CNO program a number of conclusions can be made. Firstly, while the CNO program initiated a range of actions on climate change between 2009 and 2011, it became less prominent in the years 2012 and 2013. The change in focus may be broadly attributed to three reasons: (1) a revision of national strategic and military priorities following operational drawdown from the Middle East, subsequent rebalance toward Asia as well as reductions in US Defense spending; (2) the US Navy's internal prioritisation of energy security over climate change and; (3) that the majority of studies on the impact of climate change on the US Navy by 2012 were either already underway or had already been completed (from an increasing volume of literature generated by a broad cross section of academic, military, other agency, think-tank and NGO sources).

Secondly, the CNO Program showed that the US Navy response to climate change was largely driven during the appointment of ADM Roughead. The drive to investigate the consequences of climate change on the US Navy pre-dated the election of President Obama and the appointment of Secretary Mabus. While this indicated a level of autonomy, the decisions must be viewed in the context that climate change at that moment in time was viewed as a significant international issue and that moves to address climate change were likely to be viewed favourably by the increasing likelihood of a new Administration. At any rate, it was largely already flagged as a burgeoning requirement by President Bush's 2008 *National Defense Authorization Act*. Thus, from a scientific, national security and political perspective, ADM Roughead confronted few risks, political or otherwise, in commencing a broad scale response to climate change. In some respects, he could have hoped to gain from being recognised as a leader by a favourable Administration in responding to climate change, particularly through opportunities presented by the opening of the Arctic.

Predominately, ADM Roughead's response favoured an examination of how the US Navy should adapt to climate change. While this focused on the Arctic, other geographical areas were to be considered. Broadly, the period between 2009 – 2011 can largely be considered as representing a scoping phase during which the US Navy commissioned a number of information gathering (fact finding) studies to assess the strategic implications of climate change. While the studies were extensive in their reach, extending across and down-through Navy's organisational structure, this research did *not* identify any immediate shifts in capability as a consequence of climate change. Furthermore, climate change adaptation was

scarcely promoted as a major initiative in the speech-acts of the CNO nor was it found in any lower-level initiatives. This contrasted sharply with concepts of energy security. Moreover, the scoping studies represented more of a start-point than an end-point. In this sense, the major capability decisions regarding US Navy climate change considerations were scheduled to occur from 2014 onwards via standard PPBE processes. Their very embedding within this structure itself, however, indicated a level of maturity previously unseen in relation to the military and climate change. This was notable given the substantive decline in US Navy budget from around 2010.

Furthermore, US Navy mitigation efforts were largely framed around debates on energy security with an overarching requirement to free up funding in order to (re)invest in other capability priorities. In this context, US Navy energy transformation was framed as an auxiliary benefit to broader US national climate mitigation efforts.

The third major conclusion on the CNO Program is that climate change was not considered an urgent issue sufficient to warrant any emergency measures. The rhetoric on climate change by senior naval leadership was considerably muted compared with President Obama. Although, it was considered greater than the Secretary of the Navy and Secretary of Defense. In addition, the CNO Program revealed that climate change was predominately framed by the CNO as a securitised issue. As a security issue, the US Navy focused on how it would adapt so that it might advance US national interests, centered on the Arctic. Ultimately, the US Navy climate response was one that placed paramount importance on ensuring the protection of US national security interests.

The underlying conclusion from this analysis supports a realist interpretation of US Navy response to climate change. Namely, the US Navy response was driven primarily to advance its own and its nation's self-interest by ensuring the preservation of its capabilities through the gradual adaptation of its doctrine, organisation, training, materiel, leadership, personnel and facilities in the face of a changing climate.

US Navy Oceanographer and Commander Pacific Fleet

Analysis of the Oceanographer program was undertaken on seven documents published across 2009 and 2010. Analysis of the Commander of Pacific Fleet was undertaken on 38

documents published across 2012 – 2013. An overview of the documents and their authors is in Table 36.

Title	Name	Speech-acts	Other	References to 'climate change'
US Oceanographer	RADM David Titley	5	2	N/A
Comdr. Pacific Fleet	ADM Cecil Haney	38	0	3
Total	214	43	2	3

Table 36. References to climate change in documents of US Oceanographer and Commander Pacific Fleet. (N/A indicates that the five speech-acts were specifically about climate change).

The US Navy Oceanographer, Rear Admiral (RADM) David Titley was found to have predominately framed climate change as a securitised issue with a focus on the Arctic. In addition, speeches made by RADM Titley make clear that he considered climate change a long-term issue which would gradually impact the US Navy. This steady outlook was reflected in his rhetoric whereupon he never framed climate change as a threat but rather in neutral terms. On several occasions he did, however, describe it as a strategic challenge.

During his tenure as US Navy Oceanographer (2009 – 2012), RADM Titley was appointed to lead the US Navy response to climate change including oversight of the *Arctic* and *Climate Change Roadmaps*. He was also variously used as a climate change envoy, similar to the role his British counterpart RADM Neil Morisetti. In this capacity, RADM Titley addressed the US Congress on several occasions, was a regular public speaker on the subject and also spoke at COP 15 on the strategic risks of climate change. Speeches made by RADM Titley during his tenure as US Navy Oceanographer validate findings from the CNO program, providing further clarity on US Navy intentions. The following passages summarise these aspects, providing some unique examples that build on those already provided.

RADM Titley regularly articulated a detailed portrayal (the most by any of the officials assessed in this research) of the strategic, operational and tactical risks of climate change on the US Navy and on US national security more generally. Holding a PhD in meteorology, Titley regularly engaged the scientific community and sought a response that was 'science led'. Consistently throughout the speeches examined, Titley was careful not to present climate change as a crisis (or threat) that required emergency measures. To the contrary, Titley regularly provided a sense of orderliness. In a 2010 speech, Titley (2010c, 33)

declared: 'The first thing I would say is that, from a US Navy perspective, the Arctic is a challenge and not a crisis'. More broadly, Titley extended this steady-hand approach to climate change in general. Asked by a Congressional Sub-Committee if he considered climate change a crisis, Titley (2010a) responded, 'I am not sure I would call it a crisis. It is a strategic challenge'.

This outlook was manifest in Titleys strategic, cautious and long-term approach to climate change more broadly. In an aptly named 2010 roundtable, *Climate Change Investments in a Fiscally Restrained Environment*, Titley portended a requirement to 'pace the threat' such that 'we don't get ourselves like in a tail chase with climate change or with changes in the Arctic' (Titley 2010b). RADM Titley reiterated this approach in a 2010 Hearing to the House of Representatives, Subcommittee on Energy and Environment, *A Rational Discussion of Climate Change: the Science, The Evidence, The Response* in which he argued 'we are looking strategically out. So not just three, four or five days, but what are the next 20, 30, 50 years going to look like?'(Titley 2010d, 180).

Strictly aware that 'we're going to have to fold these challenges into a tight fiscal budget', Titley (2010b) advanced the deliberate nature of the *Climate Change* and *Arctic Roadmaps* on the grounds that 'one thing I do not want to do is spend a lot of money and then find out we didn't spend it for the right thing'. In this context:

> We are beginning to conduct the assessments necessary to inform future investments and are initiating adaptation activities in areas where we have enough certainty with which to proceed (Titley 2010d, 155).

Even where Titley saw opportunity, he advanced with caution:

> … the time is ripe to use the change in climate as an opportunity [but we need] to … get this right and make sure … we get best return on our collective investment (Titley 2010b).

This outlook was also evident in downplaying ideas of strategic competition:

> In recent years … a lot of media reports about the Arctic framed the
> issues in way that made the Arctic sound like the Wild West. This was
> going to be the last great race for resources. When everybody
> converged at 90° North, we would all need to watch out. As you may
> recall, the Russians got there first and, by planting their flag on the
> North Pole, probably did us a big favour … [by] get[ting] our leaders
> to focus on the Arctic (Titley 2010c, 33).

So as to leave no doubt, Titley then added, 'we have to understand what it is we are going to do before we start spending money or before we even study how we are going to spend money' (Titley 2010c, 34).

In the interim, Titley advocated a method of building partnerships across a range of public, private, military, government and non-government areas. In 2013 Titley noted TFCC had 'interacted with over 220 governmental, non-governmental, academic, private-sector and international organizations in 14 countries' (Titley quoted in Pearce 2013, 47). Thus, for Titley, (2010b) 'there is a real opportunity, too, that this climate change can almost be viewed as a common enemy … that can lead to partnerships'. It was within this framework that Titley advocated a range of measures that could occur in the near term, including military-to-military exercises concerning HADR, Search and Rescue as well as collaboration on climate research. Nonetheless, and as was true of the broader Navy, climate change was 'more than humanitarian disaster relief' (Titley 2010c, 27).

Examination of 38 speeches between 2012 and 2013 made by the Commander of Pacific Fleet returned three general references to climate change. This examination was considered of limited value since it did not capture speeches made during the main period of focus climate change by the US Navy (2009 – 2011). Despite this, references to climate change were framed as a *challenge* and mostly as an environmental issue with a focus on rising sea-levels threatening Pacific island nations. The seeming low importance of climate change in these speeches somewhat validate the finding that the intense periods of examination by the US Navy had largely passed by 2012.[124]

---

[124]   This summary should be placed in the context of the period under which the thesis examined documents (i.e., 2003 – 2013). Specifically, it did not include an assessment of comments made by the US Pacific

Appendix to Chapter seven

Appendix 3: US Case Study Supplementary Information

3-1   Case Study method, additional content

3-2   US DoD Facility Energy Legislation 2003 – 2009

3-3   2011 US Naval Board Findings

Commander Admiral Samuel J. Locklear III from around early-mid 2013 onwards in which he identified climate change as a major security threat. Moreover, this thesis did not analyse speeches of the various US Combatant Commanders (PACOM included). A good summary of US Combat Commanders outlook (2015) on climate   change   as   a   security   issue   can   be   found   at: https://climateandsecurity.files.wordpress.com/2014/01/15_07_24-dod_gcc_congressional-report-on-national-security-implications-of-climate-change.pdf

PART IV

DISCUSSION AND ANALYSIS

Chapter 8: Discussion of Case Study Findings (case study comparison)

8.1 Introduction

This chapter presents a high-level comparative analysis of the proceeding case studies (Chapters six and seven).[125] The chapter opens with a generalised account of the influence of political ideology on military climate change policy in Australia and the US between 2003 and 2013. Attention then shifts to examining the case study findings according to periods of centre-right and then centre-left governments in both the US and Australia. As it happened, these periods largely coincided. In Australia, centre-right leadership under Prime Minister John Howard occurred from 1996 until December 2007. From December 2007 until September 2013 Australia was governed by the centre-left Australian Labor Party. In the US, centre-right leadership under President George W. Bush occurred from 20 January 2001 through until 20 January 2009. US Democrat President Barack Obama was sworn in on 20 January 2009 and was elected for a second term (20 January 2013) which concludes in 2016.

Throughout this chapter, case study findings are contextualised according to the two analytical frameworks, the Copenhagen and Paris Schools. Where applicable, a direct response to the original research questions posed in the thesis introduction (*contextual framing*, *temporal framing*, *measures* and *loci of response*) are also made.

8.2 General Finding on Political Influence

This research began by asking whether the Australian military had framed climate change as a security issue. From the outset, however, it was considered that this question could only be fully answered by analysing the political context within which climate change was being framed. Copenhagen School securitisation theory adopts this outlook, noting '[t]he military agenda … does not operate in isolation. The entire interplay of military capabilities between states is deeply conditioned by political relations' (Buzan, Wæver, and de-Wilde 1998, 52). This proved a valuable approach, as the Australian and US militaries were

---

[125]   In this chapter, "US military" refers to those military elements examined in the US case study only. This included the Secretary of Defence, Joint Chiefs of Staff and US Navy elements. The term US military is therefore used as a generic phrase and it is not intended to infer findings for the entire US military organisation or US Department of Defense.

generally found by this research to act in *response to* and *following the direction of* the (incumbent) political elite. Furthermore, when direction to act on climate change was forthcoming, no instances were identified where either military sought to frame or respond to climate change above or beyond the conditions set by their political masters. In this regard, both militaries appeared finely tuned to the contours and sensitivities surrounding the politics of climate change—acutely aware that the major political parties tended toward contrasting outlooks regarding both the science of climate change, its priority as a public policy issue and the method of policy response. This general finding tended to downplay Paris School ideas on security monoliths (the "dispositifs") deliberately positioning themselves to advantage via various institutional and governance mechanisms to control state security agendas (Bigo et al. 2008). Consequently—and somewhat less dramatic than the Paris School might suggest—this research pointed more toward Samuel Huntington's normal theory of political-military relations in which the military subordinated itself to political direction.[126] Nevertheless, Olaf Corry's (Paris School) ideas on 'riskification' had some resonance, particularly the idea that the militaries adopted risk-based programs, policies and procedures and framed it as an issue to be dealt over the long-term.

Accordingly, this research also identified a general correlation between political ideology and the military's response to climate change. Centre-right governments (US Republican and Australian Liberal-National Coalition) that tended to downplay climate change (compared with their political opposition) resulted in a lack of outward (public policy) activity and seeming minimal internal attention by the military on the subject. Centre-left governments, by contrast, that presented a more proactive suite of climate change policy responses also witnessed an increased military response to climate change. This finding, however, must be placed in context, particularly by the timing of political change (Australia, 2007 and US, 2008) which coincided with increased scientific certainty regarding climate change as a consequence of the IPCC AR4 and also the elevation of climate change as a more mainstream social, economic and security concern. The correlation between political ideology and military climate change response is identified as an area of future research.

---

[126] For a discussion of Samuel Huntington's work on normal theory of political-military relations, see Eliot A. Cohen. *Supreme Command: Soldiers, Statesmen, and Leadership in Wartime*. New York: Free Press, 2002 and for an alternate view of his elite model see Morris Janowitz. *The Professional Soldier, a Social and Political Portrait*. California: Free Press, 1960.

Lastly, such generalised findings identified above should not be misconstrued with the idea of *political interference* in military decision-making regarding their climate policies. Rather, this chapter concludes that, for the ADF at least, it was most likely a deliberate and active *avoidance* by the military leadership not to become entangled in what became a highly politicised issue. Either way, at the very heart of this finding existed the challenge of an avowedly apolitical institution responding to what emerged in the Australian context as a politically partisan security issue.

8.3   Climate Securitisation in the centre-right governments of US and Australia

Between 2003 and 2008 President Bush and Prime Minister Howard conceived of climate change in terms of energy security, technological solutions to reducing GHG emissions (particularly those that advanced their economies) and a repudiation of international agreements (Kyoto Protocol). Although Bush signalled his intention to examine the effects of climate change on the military (primarily through provisions contained in the 2008 *National Defense Authorization Act for Fiscal Year 2008*), he only rarely framed climate change as being a security issue. For instance, of the more than 100 speeches and media conferences delivered by President Bush and examined by this research, it was found he only framed climate change as a security issue in the context of energy security on just three occasions. This outcome was largely identical to John Howard who also singularly framed climate change (on nine occasions) as a security issue in terms of its relationship with energy. Significantly, climate change was never framed as being an issue of national or international security by either leader.

The language used by Bush and Howard to frame climate change (either in a securitised or non-securitised manner) also tended towards more neutral depictions than the catastrophism used by either President Obama or Prime Ministers Rudd and Gillard. Indeed, of the documents examined, this research found that Bush *never* framed climate change as a threat or crisis (in either securitised or non-securitised contexts). This was similar to John Howard who, in almost 100 speeches and media released by him (and examined by this research), only framed climate change as a threat on just two occasions (even these came very late in his term when it was arguably done as a means to counter the ascent of his political opposition, led by Kevin Rudd).

In terms of strategic policy, hard-power security issues dominated the conservative era. Climate change was an insignificant or, in the case of Australia, a non-existent factor in these documents. While the 2002 US *National Security Strategy* briefly mentioned climate change, it was done so under the heading of "Economic Growth". By the 2006 US NSS, climate change had disappeared from the US strategic narrative altogether. In Australia's major strategic policy documents published under John Howard, climate change was not referenced once in either the 2000 White Paper or the 2003, 2005 and 2007 Defence Update(s).

Moreover, although climate change emerged as a *political* issue under the conservative governments of Bush and Howard it was never consolidated as a *security* issue. More accurately, it was never consolidated as a national security issue by the governments of these countries because it was never viewed as such by the two primary securitising actors in *Messrs*. Howard and Bush. This research found climate change was predominately framed by both Bush and Howard as a non-securitised issue with varying degrees of focus on energy, economics or the establishment (or otherwise) of an international agreement to limit emissions. More than anything else, however, both leaders framed climate change in terms of its relationship around energy. This was reflected in their policy agenda(s) but also in their speeches. For instance, it was found that of the speeches in which President Bush framed climate change (and was coded by this research), almost 70 percent of all coded speeches were done so in terms of its relationship with *energy*. For Howard, almost 40 percent of speeches coded framed climate change in terms of energy. These findings broadly matched other scholarly works that have examined this subject (Floyd 2010, Brauch 2011b). Lastly, no speeches were identified where either Bush or Howard linked climate change as an issue concerning their military forces (though Bush later instigated the issue by issuing directives in 2008).

Accordingly, the military's response to climate change, based on detailed analysis of speech-acts, under conservative administrations (2003 – 2008) was marginal (ADF) to limited (US). That is, it largely reflected the outlook and position held by the government of the day where, in the words of Australian Deputy Secretary of (Defence) Strategy, the military was simply being 'consistent with Government policy' (Peter Jennings quoted in Alexander 2011, 31). In this context, both the US and Australian militaries were intensely focused on the Global War on Terror. For the most part (until at least 2008) climate change simply did not register as an issue of any consequence for US or Australian militaries.

In the Australian military, although there was early evidence (from 2006) that the broader military-intelligence community were already conducting internal assessments on climate change, understandings within the ADF appeared mixed. In late 2006 the Departmental Secretary (Mr Ric Smith) was adamant his Department had undertaken no analysis of the issue (Budget Estimates 2006, 70). However, in 2007 then Deputy Secretary of Strategy (Mr Michael Pezzullo), discussed it at length but ultimately conceded it a 'non-traditional' security issue that would 'not affect the force … being developed over the current 10 year period' and would only impact the ADF over the 'long-run' of '40 to 50 year period' (Budget Estimates 2007a, 101 - 103). Other ADF documents, on the other hand, and admittedly at lower bureaucratic levels, framed climate change as a serious and broad ranging threat capable of degrading ADF capability in the near, medium and longer terms (Reich et al. 2006, 240). The influence of such documents, however, was marginal. In one instance the ADF published a policy outlook document (*Scan 2025*) describing the threat of climate change and its possible impacts on Defence, but then caveated the publication saying, 'the findings and views expressed in this report … are not to be taken as the official position of the Department' (Reich et al. 2006, cover page). During this period, sources within the Department of Defence also noted the ADF's trepidation surrounding the domestic politics of climate change.

Aversion to climate change on political grounds was publicly confirmed by the Deputy Secretary Strategy in 2007 when he noted during Senate Estimates that Defence would 'steer well clear' of the 'dramatic and active [political] debate' surrounding the *rate* of climate change (Budget Estimates 2007a, 102). Arguably, as an institution designed to assess strategic risk, this is where the ADF needed to locate its thinking. In this context, climate change came to be initially framed as just one of many non-traditional security issues on par with 'water resources, resource depletion … pandemic threats, HIV-AIDS and the rest' (Michael Pezzullo quoted in Commonwealth of Australia 2007a, 102). Gradually the topic emerged from 2007 onwards in the speeches of the Australian military elite (such has the Chief of Defence Force and Service Chiefs) as an adjunct and minor security issue. Very little attention, however, was given to understanding the broader implications concerning its impact on infrastructure, workforce health, energy or the possibility of future regulation. The apparent disinterest in climate change by the ADF hierarchy even pointed towards a "strategic lag" in which the political establishment was operating well in advance of the military in announcing climate change as a national security threat. Given the lack of

connection made by the government regarding climate change, security and the military—and that the ADF was heavily occupied in Iraq and Afghanistan—this was somewhat understandable. But from the perspective of climate change gauged from the scientific community, it was a questionable strategic outlook.

In the US military—and despite the very active debate occurring in congress on the subject—no single reference to climate change was found in more than 380 speeches given by Secretary of Defence Donald Rumsfeld and US Navy Secretaries Gordon England and Donald Winter between 2003 and 2009. With some limited exceptions (discussed below), no reference to climate change was identified in any of the major national strategic policy documents published during the Bush era.[127] Although this research covered a much smaller percentage of the US military (as compared against the Australian military), a similar lack of attention (by the military) under the auspices of a conservative government was evident. A telling passage on the priority of environmental issues more generally, was delivered by Donald Rumsfeld when he sought to clarify environmental statutes that restricted or limited troop readiness against the Global War on Terror. The imputation was clear: environmental statues would be diluted (at best) or removed (preferred) lest they interfere with US troop readiness. These findings resonated strongly with other scholarly works that have addressed this matter (notably Floyd 2010).

But notable exceptions to this assessment took place late in the Bush presidency. In 2008 President Bush signed *National Defense Authorization Act for Fiscal Year 2008* and *National Security Presidential Directive 66 / Homeland Security Directive 25* that directed the US military to examine the national security implications of climate change. These directives marked a point of divergence between Australian and US military climate policy response. In many respects, that issuance appeared somewhat incongruent, particularly when contextualised against the lethargic climate policies of the Bush era and sceptical attitudes of the US conservative base. It raised the question: Why did a Republican Administration direct the US military to seriously consider climate change when it had largely ignored it in other areas? Two main factors are identified here. The first was that despite the partisan nature of US climate change politics, that country still had a far deeper, richer and more sustained

---

[127] This assessment excluded the 2002 NSS which *did* include climate change but remained outside the timeframe considered by the case study.

climate security discourse than had occurred in Australia. This was evident across a number of areas in US society. In politics, for example, the US Congress had held multiple sessions explicitly examining climate security matters (refer to the literature review and US case study for specific examples). These often involved the call-up of dozens of experts from the scientific and military communities to testify at such proceedings.[128] (Notably, a bill was even introduced on 19 April 2007 by Senator Edward Markey to address the risks posed by climate security, the *Global Climate Change Security Oversight Act*, but was not enacted (Climate Security Bill 2007, Tauberer 2015)). These debates (occurring as they had since the 1980s) pointed toward a far deeper institutional understanding of climate change, influenced as it always was by the spectre of 'energy security' but increasingly the potential opportunities created by the opening of the Arctic. Save for some limited probing from minority parties during senate estimates, Australia never appeared to have had such an equivalent interrogative political discourse on climate security.

The US military (or at least affiliated people and institutions) also had a greater presence in climate security discourse than the Australian military. This was evident not just through congressional testimony by military personnel but also in its early appearance in National Security Strategy (2002), National Defence Strategy (2008) and—most prominently— through the persuasive and powerful think-tank contributions of many former senior US military officers. This latter cohort of retired military officers—and the US think-tanks more broadly—were particularly influential in US climate security discourse from 2007 and in framing climate change as a national security 'threat multiplier'. Once again, this did not occur in Australia where, with the exception of former Chief of Defence Force Admiral Chris Barrie, not one retired high-ranking military officer was identified by this research as a vocal participant in the emerging climate security discourse.[129]

The second factor likely as influencing President Bush on issuing the climate security directives was one of *political necessity* in which it was important to be seen to do something about climate change which—during a presidential election year—had emerged as a central

---

[128]   Although this thesis did not examine wider US institutions, many featured prominently in US climate literature and debates (e.g., NASA and NOAA).
[129]   For Admiral Barrie contributions see: https://www.youtube.com/watch?v=opw0OETYOo4, and http://www.abc.net.au/news/2013-09-12/barrie---defence-force-and-climate-change/4953150 and https://cpd.org.au/2015/06/widespread-coverage-of-cpds-new-report-on-australias-climate-security-challenge-2/.

issue. This possibility related to the Republican Party taking action on climate change in an area of perceived policy strength, namely national security. Ironically, the very fact that the Republican Party invoked US national security in relation to climate change likely normalised the US military's involvement to some degree. It was, in some respects akin to the idea that only Nixon could "go to China". (This situation might have been vastly different if the Democratic Party had instigated US military response to climate change). In some respects, the two Bush initiatives identified by this research were also not dissimilar to the raft of (albeit non-security related) climate change policy measures proposed by Howard throughout 2007 that—pressed by his political opponent Kevin Rudd—seemingly belied previously held (minimalist) views on the subject.

Furthermore, the very fact that the US conservative administration under President Bush directed the military to take some action but that that action did not actually occur until a change of government, still lends support to the contention made earlier regarding the alignment of political ideology and military climate response. Put another way, although a response was initiated by a conservative government, political responsibility would ultimately rest with a new Administration which, even in early 2008, polling indicated would likely belong to a Democrat Administration.[130] This assessment particularly applied to *Homeland Security Directive 25* that was enacted *after* results of the 2008 presidential election were known, but less so for the *National Defense Authorization Act* which was signed into law early in 2008.

Notwithstanding these efforts, the US military response (and the Australian military response for that matter) should not be overstated during the centre-right era of Bush and Howard. For, beyond these measures, there remained a distinct lack of military attention on climate change. Several factors were identified and although this research did not focus on them *per se*, their importance should not be downplayed. Most prominent was that both the US and Australian militaries were heavily engaged in fighting two major wars (Iraq and Afghanistan) and were busy in a raft of other regional operations, training and various institutional reforms ("transformation" in the US military under Secretary Rumsfeld and initiatives such as "Hardened Network Army" in the ADF). Iraq, in particular, occupied the majority of US

---

[130] See for instance data compiled at Wikipedia in which 130 separate polls conducted by various polling authorities between Mar – Nov 2008 showed a Democratic president on 117 occasions (http://en.wikipedia.org/wiki/Nationwide_opinion_polling_for_the_United_States_presidential_election,_2008).

strategic attention; particularly during 2007 when US military deaths passed more than 100 per month and the so-called surge of some 30,000 US troops took place. Leaders from both nations, military and political alike often referred to the point that their countries were at war.

Not surprisingly, this dominated the security agenda of both nations during the conservative period and is modestly shown by this research through comparing the word count of terms such as *terrorism* to *climate change* in the speeches of the political and military elite. In more than 1,600 strategic documents examined in the US case study, 185 direct references to *climate change* were found against more than 4,300 for *terrorism*. As was noted by Secretary Gates in his memoirs as Secretary of Defence: 'My highest priority was to turn the situation around in Iraq' (Gates 2014, 25). The Australian situation was similarly summed up by the Minister for Defence, Brendan Nelson in 2007 when he remarked '[t]errorism … is the defining issue of my generation and that of my children' (Nelson 2007b).

Related to this observation was that climate change was also not yet fully conceived of as being an issue requiring military involvement. This perspective remained amongst senior Australian military officials who variously positioned the ADF as the 'agency of last resort' and identified climate change as a long-term issue which would not impact current force structures or capability (Alexander 2011, 30). Similar sentiments were to be found in the US, where Republican senators chided the (Democrat) Secretary of Navy for his energy measures as not focusing on core missions and capabilities and as an agenda to 'green' the military.

A final observation that might be made in relation to military climate response under centre-right government pertains to the interlinked ideas of energy security and climate change. The political focus on energy security witnessed a corresponding level of interest by the military. Arguably, however, they were for very different reasons. While the political sector focused on the generalities of energy security from a national perspective the debates and discussion occurring within military circles were much more focused. Pointedly, although climate change and energy were conflated in the national-political debates, they were *not* a feature of the *energy* debates occurring within the militaries until at least 2008. Far from mitigating greenhouse gas emissions for the sake of contributing toward national emissions reductions, the military was rather focused on reducing energy costs, reducing the logistical overheads of fuel (re)supply lines, improving the endurance and sustainability of field deployable capabilities and, of particular focus, on saving lives of its soldiers, sailors and airmen through

reducing logistic footprints and minimising requirement for convoy security. Dozens of high-level, wide ranging reports from across many different parts of the US Department of Defense were undertaken to 'solving the DoDs energy problem' (Defense Science Board Task Force 2008, 7). Climate change was not a feature of these discussions until at least 2008. During the same period, albeit on a much smaller scale, similar interest in energy matters (*absent of any discussion on climate change*) were reflected within the Australian military.

*

From 2007 onwards, however, climate change gradually emerged as a mainstream issue within the Australian and US militaries. This can be attributed to three main reasons. First—and as already outlined—was the election of centre-left federal governments in late 2007 (Australia Labor Party) and 2008 (US Democrat Party). Both Prime Minister Rudd and President Obama campaigned on progressive climate change platforms, vowing to take action and framed climate change as a serious security threat of direct applicability to the military. The election of centre-left governments with a mandate for climate action therefore set the necessary political conditions for far more aggressive climate change policies which the various departments of state (including the military) were expected to contribute. In the US, the Democrats were able to leverage off President Bush's climate security directives, consolidating climate change as a security issue of some importance for its military.

The second reason was the consolidation of climate change as an issue of international significance as a consequence of mounting scientific, social and economic consequences. These aspects were emphasised at the beginning of this thesis, mainly highlighted through globally prominent reports—notably IPCC AR4, *Stern Review* and, in Australia, the *Garnaut Review*—as well as its placement on the agenda at the highest political levels, including the G8, G20 and UN General Assembly and Security Council.

Thirdly, was the growing public awareness and "calls-to-act". Influential in this sense were mainstream efforts resulting from movies such as Al Gore's *Inconvenient Truth* as well as literature from academia, think-tanks and the general media establishing the case of climate change as a legitimate social, economic and security concern. Hurricane Katrina and other natural disasters also contributed to a sense that the climate was changing, justifying a

requirement to act. Surveys and polling conducted around this period indicated elevated public concern for climate change.

Out of these three reasons, however, it was the political dimension that likely had most influence and impact on instigating a change in the military's response to climate change. More precisely, the election of centre-left governments created the necessary political conditions for each military to become more engaged in national climate discourses, whether through top-down legislation/regulation or via strategic guidance or from bottom-up initiatives that came from within the military bureaucracy itself. This latter aspect was more prominent in the US military than in the ADF. The following sections now turn to analysing military climate response, through the prism of securitisation theory, under centre-left governments.

8.4   Climate Securitisation in the ADF under a centre-left Government

The election of a centre-left government(s) in Australia between late 2007 and 2013 resulted in a stark contrast of climate policy presented under John Howard. Whereas Howard opposed Kyoto, Kevin Rudd and Julia Gillard supported it. While Howard (at the last minute) was reluctantly manoeuvred into supporting an emissions trading scheme, Rudd initially embraced it and a variation was subsequently legislated by Gillard. Where Howard did not view climate change as an urgent issue, Rudd and Gillard spoke frequently as though it was an immediate issue requiring swift, resolute action. To bolster their cause, Rudd and Gillard constantly described climate change as a social, moral, economic and security threat in which Australia was 'on the front line to suffer' (Rudd 2008f). Howard—except on the rarest occasions—never used such strong language. Whereas Howard was wary of 'individual reports', Rudd and Gillard regularly evoked 'the overwhelming global scientific evidence' (Rudd 2009c) amassed by the world's various scientific institutions and academies. Rudd and Gillard also cast themselves as champions of renewable energy, expanding on Howard policies and implementing a raft of new initiatives.

From an economic perspective, Rudd argued the 'cost of inaction on climate change is far greater than the cost of action' and that 'failure to engage with the global community on climate change would exclude us from the chance to shape the global response in ways

consistent with our national interest' (Rudd 2008a). This was vastly different from Howard, but it aligned with Rudd's broader strategic purpose of Australia as an activist Middle-Power in which he believed 'those that share the benefits of these systems must also share the responsibilities of supporting and enhancing them'(Rudd 2008g). Summarily, Rudd cemented climate change as a core *political* issue.

Having achieved this, Rudd became the first Australian political leader in government to present climate change as a major *security threat* to the Australian people. Again, the shift in rhetoric from Howard was dramatic. Rudd spoke of climate change in catastrophic and widespread terms that reached crescendo in late 2009 whereupon he was under significant pressure to help craft an international agreement at Copenhagen and ensure passage of his CPRS legislation through the Australian parliament. Inarguably, between his election in late 2007 and departure in mid-2010, Rudd used rhetoric and pursued actions that attempted to securitise climate change and render it—in the words of the Paris School—'governable'. While much commentary has been made of Rudds political motives, what relationship and impact did all this have on the Australian military? Also, what does securitisation theory offer by way of an explanation?

Recalling the Copenhagen School framework, Rudd arguably sought to securitise climate change so that—in the words of securitisation theory—it became 'above' politics. By trying to raise climate change as an issue above politics, Rudd sought to neutralise sceptics, confound his political opposition and consolidate his centrepiece political agenda in the minds of the public (i.e., the audience) as being so crucial as to be a matter of national security. Undoubtedly, he also had a firm eye on widening the discussion (to his favour) such that he would attract political support for his climate change legislation. Enlisting the military into climate security discourse for this cause might not have been beyond comprehension. In looking at the whole, securitisation was arguably born primarily out of his political considerations.

Thus, Rudd—as a legitimate securitising actor—became energetic in attempts to construct climate change as a security threat. From London to the Pacific to the United Nations, Rudd touted: 'Climate change is not just an environmental, economic and moral challenge. It is also a security challenge' (Rudd 2008b).

To the Pacific Island Forum, Rudd labelled it a 'matter of national survival' (2009f). To an Australian audience he argued that failure to act on climate change would have 'severe' consequences and 'resulting catastrophic events' (Rudd 2008g). The devastation portrayed was widespread; nine distinct categories of security were identified by this research in which Rudd framed climate change as impacting. Repeatedly, climate change was framed as a severe threat to the Australian economy, its society, and the environment and future generations. On occasion it was cast as a planetary-wide threat. His language intensified nearer the political culmination of his centrepiece climate legislation and the Copenhagen conference, 'the latest scientific research on climate change confirms our worst fears. Climate change is happening faster than we previously thought' (Rudd 2009d). In totality, his rhetoric approximated powerfully to the Copenhagen qualifier that to become securitised an issue must be presented as an existential threat.

Pursuing securitisation, Rudd called on climate change to be mainstreamed by the country's key national security institutions into 'policy and analysis process' (Rudd 2008g). In the language of the Paris School, Rudd now actively sought to render climate change governable as a security issue within the military-security bureaucracy. Thus, wherever he spoke of national security, climate change was prominent. Under Rudd and then Gillard, every major national security publication between 2008 and 2013 (2009 and 2013 Defence White Papers and the 2008 and 2013 National Security Strategies) described the risks posed by climate change. Linking climate change to expand Australia's HADR capabilities, it appeared to influence ADF capability acquisition through the purchase of naval ships and military training activities. As a minimum, senior Ministers in the Rudd government responsible for these initiatives at least spoke as though climate change was an influencing factor, even though the original purpose was really conceived in far broader terms by the ADF (e.g., the development of what the then CDF Angus Houston described as a 'balanced' force (Houston 2007, 60 & 61)). Nevertheless, the situation was strengthened by circumstance whereupon a succession of large scale domestic natural disasters (Victorian bushfires (2009), Cyclone Yasi (2011) and the Queensland floods (2010 – 2011)) witnessed unprecedented ADF responses.

In this context, the active mainstreaming of climate change within the national security institutions as well as the intense focus by the prime minister resulted in a situation where the ADF could no longer be exceptional to debates—and response measures—surrounding

climate change. While the ADF had entered at the margins as early as 2006, by 2008 this was simply no longer tenable. Thus, from 2008 the Australian military (under successive governments of Rudd and then Gillard) initiated a broad response to climate change. By extension, it became partially engaged in the accompanying debates surrounding climate change and, for a time, had the appearance of a *de facto* securitising actor.

However, the ADF response to climate change was a marginal one. The senior leadership of the ADF barely spoke on climate change and never at any great length. This research analysed 93 speeches by the three Service Chiefs (Army, Navy and Air Force) between 2003 and 2013. Of the 93 speeches, just six contained any reference (brief as they were) to climate change. No organisational-wide mitigation or adaptation program was implemented. Unlike in the UK and US, no senior military officer was appointed to oversee a climate response or act as a focal point. While mid-ranking military officers wrote on the various climate change threats, it was also acknowledged as being too intangible to have much policy relevance for the ADF (White 2008, 12). Energy security and its attendant issues once again became prominent, but even these arguably appeared piecemeal and lacking in strategic purpose. Contributions by the Australian military to establish emissions reductions targets (mitigation) were raised but then dropped. While one program, *Combat Climate Change* claimed the ADF would do 'all it could' to reduce emissions (Defence 2008a); large and significant parts of the organisation (i.e., 'operational fuels' comprising about 50 percent of ADF emissions) were excluded (Commonwealth of Australia 2013a). Tellingly, ADF greenhouse gas emissions increased during the life of the program.

Although the term *climate change* crept into doctrine, the penetration and extent appeared minimal. This was also the case with the ADFs major environmental and energy policies where—amongst literally dozens of initiatives—climate change was only rarely invoked as a pretext for action. Some evidence was also found of attempts to avoid using the term climate change, using instead 'climate variability'. Furthermore, although there emerged a deeper bureaucratisation (mainstreaming) of climate change within and across the Australian military; the major statements (e.g., declaratory policy such as the Defence White Papers) emanated from the highest national strategic-levels (endorsed by the Minister of Defence and under the watchful sanction of the Prime Minister). Thus, while these high-level statements are part-military, they can be regarded as mostly political productions that reflected the agenda of the centre-left government more than necessarily that of the military.

Elsewhere, climate change was bureaucratised at the operational level in a largely piecemeal and uncoordinated fashion. There appeared no overarching directive; programs emerged across different areas but with no linking narrative or consistency of purpose. Where they did appear, they were ostensibly about mitigating long-term risks. Most prominent was a $2 million report on the risk of sea-level rise and inundation to Defence bases commissioned by Defence Support Group (DSG). However, because it was classified the outcomes were never released to the public. No reference to the report (let alone climate change) was found in the 2011 *Australian Defence Force Posture Review*. DSG also oversaw *Combat Climate Change*, a reasonably prominent but narrowly conceived energy efficiency program that literally targeted *individuals* on how to reduce their emissions footprint. An organisational-wide strategy was absent. The Vice Chief of Defence Group initiated another program (*Global Change and Energy Sustainability Initiative*) examining the impact on ADF preparedness and readiness; this pointed toward organisational-level adaptation to the risks of climate change and broader levels of engagement with industry and academia. Defence Infrastructure also oversaw some medium-scale infrastructure initiatives, including a joint government-industry wave energy development at Fleet Base West. A suite of minor energy efficiency measures were also introduced that related more to cost saving than climate change.

More subtle, and not as visible as those just mentioned, the ADF also began to adapt its organisation to meet governance requirements of climate change. In 2011, Deputy Secretary Strategy Peter Jennings, singled out discreet areas within the military bureaucracy to deal with what he saw as three key aspects impacting Defence; rising sea-levels, greenhouse gas emissions and ADF energy requirements. He particularly cited Strategic Policy Division as 'the lead' and that the strategic impacts of climate change would now be considered part of 'annual Defence planning' (Jennings quoted in Alexander 2011, 30 & 31). Some minor changes were also made to the Defence procurement guidelines that identified 'sustainable procurement' and 'energy efficiency' as procurement selection factors (Defence 2014, 1.2-2). Lastly, Defence also became a member of an Inter Departmental Committee on Climate Change, though its level of participation was cast in doubt when the final report released by the committee failed to mention any actual involvement by Defence. All up, these initiatives represented the core ADF response to climate change; decidedly they were not policies that securitised climate change but rather piecemeal bureaucratic responses geared to reduce strategic risk, improve operating efficiency and save money. Arguably, while many initiatives

appeared credible as stand-alone projects, the lack of an overall strategy tying them together gave the impression that such a policy was *deliberately* avoided. That is to say, for an organisation that prided itself on being strategy led and one that had literally dozens of other strategies and policies of every kind it is incredulous to think that climate change was somehow missed.

Furthermore, the ADF never exceeded political expectation it would progress any major climate change initiatives. While one scholar (Zhang 2009) posed the idea that the Government might have deliberately talked-up climate change threats to create strategic-military opportunities, reality suggested otherwise. Just as climate change emerged as a national security threat of any significance, the Defence budget contracted to the lowest proportion of GDP since pre-World War Two (Thomson 2013, vi). Additionally, although climate change became established as an issue within discreet areas of the ADF, the broader picture suggested minor take-up. From a force-structure and capability perspective, when Rudd and his Ministers talked up the prospect of climate change increasing HADR and stability missions, the ADF readily added the requirement to create a 'balanced force … giving us the option to build a more potent force structure relatively quickly' (Houston 2010). Warfighting and its attendant capabilities that were geared to 'defeat the nation's enemies' remained priority (Morrison 2013, 6 - 8). Not surprisingly, climate change was never declared to be a direct driver of force-structure or capability. Neither, though this time perhaps surprisingly, was it included as a factor in the 2012 *Force Posture Review* (FPR) that (amongst other issues) examined future defence estate requirements. Given that the ADF already knew in 2011 from a first-pass study that three of its major bases (RAAF Base Townsville, HMAS Cairns and HMAS Stirling) might be subject to 'inundation by storm surges occurring within the context of rising sea levels from climate change', its absence from the FPR was, on the surface at least, questionable (2012a).

So, on the one hand, this reflected the Paris School framework that emphasises how security institutions create their own bureaucracies as a means to govern security issues (consisting of new policies, roadmaps, doctrine and so on). But on the other hand, the tentative ADF response—well behind the political sphere and industry response—stood in contrast to a central aspect of the Paris School which portrays an almost Orwellian-like security apparatus exerting disproportionate influence over the political domain. If anything, on the evidence examined by this research it was the political direction at the instigation of the centre-left

Labor Government from 2007 onwards that prompted a military response. Equally, when it became clear that climate change was a partisan issue between the two major federal parties, the military began to limit its involvement and exposure to the issue of climate change.

A final, somewhat telling anecdote of the ADF's ambivalence to engage on the issue of climate change occurred between the period of Rudd's securitisation apogee in late 2009 and his removal as prime minister in mid-2010. Just as the pace of climate securitisation gathered, the ADF declared in its 2009 end of year annual review that it would set climate change emissions targets, promote an internal discussion paper on climate change impacts and develop the "Defence Climate Change and Sustainable Development Strategy" for publication (Defence 2009a, 186). But just as the ADF made this announcement, political momentum changed. The Liberal Party of Australia, then in opposition, elected a leader (Tony Abbott) who fervently rejected Labor's climate agenda. When the Copenhagen conference failed to deliver a unified and comprehensive international climate agreement and Rudd's CPRS failed to gain passage through the Senate, climate change was consolidated as a particularly bitter and divisive political issue. While Rudd sought to minimise reference to it, his political opposition capitalised on his strategic back-down (Macintosh, Wilkinson, and Denniss 2010). When news broke on 27 April 2010 that Rudd had abandoned the scheme, a subsequent Newspoll found Labor had lost around one million supporters in a fortnight (Chubb 2014a). It was a contributing factor for Rudd being deposed as Prime Minister in June 2010 and replaced by Julia Gillard (Aulich 2010).

Hyper attentive to the partisan and polarised political debates, the ADF then reneged on its pledge to set emissions targets and publish a climate strategy. From what this research found, both remained unpublished and unspoken of by anyone within the ADF. Thereafter, and with the exception of the *Global Change and Energy Sustainability Initiative* and the piecemeal initiatives identified above, climate change remained a low priority for Defence (no other major climate change programs were initiated by Defence from 2010 −11). Correspondingly, from 2011 onwards, this research found climate change was scarcely being framed as a security *challenge* or *threat* by Australia's political and military elite (see Figure 14).

From the perspective of securitisation theory, and in relation to climate change, the Australian military thus appeared—at first glance—as a reluctant securitising actor. Arguably, this was atypical for the military where, in traditional security affairs, it was (and

remains) a proactive if not central, securitising actor. And so, apart from being "busy elsewhere" and not the lead agency to respond to climate change, what other factors were at play that fed ADF reluctance? Also, on the evidence available, was the ADF really a securitising actor at all, reluctant or otherwise?

To answer this question, a deeper assessment of Rudd's securitisation agenda is required. Arguably, although Rudd pursued securitisation of climate change, he never truly sought to pursue it to the lengths defined by Copenhagen's framework. Moreover, Rudd never sought 'emergency measures' that required actors to move 'beyond rules'. This was true of his political measures—he baulked at the prospect of a double-dissolution election to seek passage of his climate legislation—and it was also true of his securitisation measures. For instance, although Rudd spoke often on the magnitude of the security threats, he simultaneously reassured people that they would only manifest 'over the long run' (2008g). The 2009 *Defence White Paper* as a case in point referred to decades-long timescales. In the 2008 *National Security Statement* Rudd (2008h) doubled-down, '[o]ver the long-term, climate change represents a most fundamental national security challenge, over the long run'. Thus, a distinction became evident from this research between Rudd's politicisation timeframe (urgent) and his securitisation timeframe (long-term). The long timeframe of securitisation further rendered the idea of taking emergency measures (in a securitisation sense) a nonsensical one and of marginal interest to the Australian military that dealt foremost with short and near term time-horizons. As a result, climate change was partly framed by the military as an issue largely for capability development—an area of equally long duration.

Relevant to this point, was the idea that climate change cannot be easily reconciled under Copenhagen securitisation theory. Apart from the decades-long time-scales, few genuinely plausible options existed as to what may have constituted emergency measures, particularly where military involvement was concerned. This equally applied to the idea of getting 'actors' to move 'beyond rules'. What actors, what rules? Were *green* (developed) nations to adopt punitive measures against *dirty* (undeveloped) nations? What role would the military play in this scenario? As absurd as it is to suggest, might the military be used to strike industrial greenhouse gas emissions sites of dirty nations? Might the military be used as an instrument for geo-engineering purposes (either unilaterally or multilaterally) such as releasing atmospheric particulates to reduce the amount of incoming solar radiation? Such a

case was never truly made by Rudd. Indeed, it never could have been since every nation was (and is) implicated. As remarked by former UK Foreign Secretary Margaret Beckett, 'we are all our own enemies' (Beckett 2007). Moreover, securitisation as understood in traditional geopolitics has typically witnessed military involvement in some form or another. But its role is far less certain in climate change; the most activist offerings stretch the realms of credibility.

Accordingly, while Rudd spoke in generalities of climate security threats, he never invoked the military as a solution to those threats. Rather, the Australian military was partly framed by some as a type of "first responder" in the event of major climate disasters and the likelihood of regional stability operations. Both of these also fitted comfortably with Labor's enduring strategic narrative that has historically placed primacy on the Australian continent and the immediate region (Evans 2005). Nested within this strategic outlook was an increased emphasis by the ADF on HADR and stability operations. While these might be viewed as *involving* the security establishment, they were hardly *dominated* by the security establishment. Furthermore, despite efforts by some scholars (Hartmann 2010), it is difficult to argue that such measures were *not* in the interest of either Australians or those from across the region.[131] (This aspect led to an alternate formulation on the securitisation model presented in the introduction, and is included at Chapter nine).

Having now teased out Rudd's agenda, a more nuanced picture emerges. Summarily, securitisation was pursued by Rudd to support his political agenda. He did not securitise it to be 'above' politics, it *was* politics. Consequently, his securitisation agenda had intended limits; it was never invoked with the commitments described by Copenhagen securitisation theory. It was, in some respects, a securitisation feign where rhetoric exceeded any genuine willingness to act. How then, can the Australian military response to climate change be summarised in the context of these theoretical positions over the period 2008 – 2013?

The Australian military, acute to the political sensitivities and cognisant of the inherent limits to Rudd's securitisation agenda (and the military's role within it), thus presented as a reluctant but nonetheless calculating actor, in a scientifically informed but politically-dominated climate securitisation agenda. To be sure, it was being "consistent" with

---

[131]   See, for example, the ADF's contribution to assisting Papuan New Guineans during the 1997 – 98 El Nino drought and other regional HADR operations (Barrie et al. 2015, 39 & 60)

Government policy, but it also had a firm grasp of the possibility that a change of government at either the 2010 and then 2013 elections might render any climate change investments or initiatives null and void or risky. Thus, from a Copenhagen conceptual perspective, the Australian military was not a securitising actor *per se*, rather it sought to position itself as a benign participant—actively avoiding the political dimension—and focusing on a cautious, low-profile, low-cost, gradualist response to only the most practical and strikingly obvious of long-term risks posed by a changing climate. It was a strategy that minimised any investment (resource or reputational) lest a change of government rendered them invalid or it drew unwanted criticism. The non-securitised dimensions (the "goverance dimensions") of climate change subsequently became a focus for the operational and strategic levels of the ADF; bureaucratic programs were developed to oversee their governance but were cognisant not to over-step the mark. This outcome depicted aspects of the Paris School (particularly its ideas on 'bureaucratisation' and Olaf Corry's concept of 'riskification')) but it repudiated what this thesis understood as the *sine qua non* of this doctrine that conceived a framework in which the military exerted disproportionate influence over the national (political) security agenda. At the very heart of this analysis existed the challenge of an avowedly apolitical institution responding to what emerged in the Australian context as a politically partisan security issue.

<div align="center">*</div>

Having reached this assessment, it might be asked—was (is) this situation acceptable? Moreover, if climate change was (and remains) an existential threat and if the current decade represents the so-called critical decade to avoid these threats, then is the Australian military justified in adopting a minimalist climate change strategy? Should it play a more activist role? If so, what is this role? More broadly—and looking to the future—does the Australian military and associated federal intelligence and assessment institutions have a unique obligation to extricate themselves from the politics of climate change so that they might provide the public an unfettered assessment of the security risks involved? Furthermore, what are the broader implications for Australian strategic policy and how might climate change affect the future relationship between the military, the government and the people (particularly where the security threats are viewed in such a partisan manner)? As was put by one commentator: 'How does the military, hoping to develop intellectual grit, manoeuvre around the very institution that feeds it?' (Terreu 2014). Of more currency, however, is the requirement for government agencies to speak truth to power and adhere to what US political

scientist Richard K. Betts identified what should be the 'irrevocable norm' for all military and intelligence analysis, in which: '[political] policy interests, preferences, or decisions must never determine intelligence judgements' (Betts 2005, 58). Similar arguments exist in relation to the security risks of climate change.

8.5 Political Securitisation in the US under a centre-left Government

The November 2008 election of President Obama signified a major shift in US political outlook regarding climate change. Vowing to 'mark a new chapter in America's leadership on climate change', Obama (2009h) repudiated the Bush era where 'rigid ideology has overruled sound science' and accorded climate change one of his 'highest priorities' (Obama 2009i). From an international relations perspective Obama even 'put climate at the *top* of our diplomatic agenda' (Obama 2009e; emphasis added). Considering that the US was still engaged in two wars, this was a striking comment.

In general, there existed many similarities between the climate policies of the Obama Administration and the Rudd-Gillard governments. Foremost in this sense was the introduction (and subsequent Senate defeat) of a cap and trade / emission trading scheme as well as the introduction of a number of policies designed to transform each economy toward a sustainable and clean-energy future. Following the GFC, both the Obama and Rudd administrations directed significant stimulus spending toward supporting this transformation. In this regard, both leaders used the GFC as an opportunity to make good on their campaign promise to address climate change. For Obama, it meant turning a 'moment of peril … into one of progress' (Obama 2009h).

Central to this thesis was the strikingly similar rhetorical outlooks adopted by both Rudd and Obama in relation to climate securitisation. Like Rudd, Obama adopted a broad interpretation of climate change as a security threat. While this research only identified three separate climate securitised categories (to which he framed climate change on nine separate occasions), Obama's speeches on the matter arguably conveyed a much deeper understanding of climate security impacts than the coding inferred. To the Ghanaian Parliament, for instance, Obama argued that a 'warming planet will spread disease, shrink water resources, and deplete crops, creating conditions that produce more famine and more conflict' (Obama

2009j). To the UN General Assembly he reckoned climate change a 'danger' which 'must not be deferred' for want of 'wars over refugees and resources … drought and famine. Land that humans beings have lived on for millennia will disappear' (Obama 2009k). In Italy at the Major Economies Forum he declared '[e]very nation is at risk' (Obama 2009i). On many occasions he likened how the world was at a 'crossroad of history' and that 'America will not be held hostage' (Obama 2009h). Overall, Obama surmised that the dangers posed by climate change rendered current efforts to end wars as fruitless since they 'will be eclipsed by wars over refugees and resources' (Obama 2009g). Many of Obama's speeches thus echoed Rudd's vision of planetary scale devastation framed, as it were, in the language of security.

Like Rudd, Obama also sought to frame climate change as an issue requiring immediate (even 'urgent'), and sometimes extraordinary action. In one statement, Obama endorsed the idea that 'climate change poses a clear danger requiring an extraordinary global response' (cited in Major Economies Forum Declaration 2009). In another he implored '[t]he threat from climate change is serious, it is urgent, and it is growing … if we fail to meet it boldly, swiftly, and together, we risk … irreversible catastrophe' (2009e). He further added 'the security and stability of each nations and all peoples … are in jeopardy … time we have to reverse this tide is running out' (Obama 2009f). 'We don't have much time left' (Obama 2009f). Unlike the Australian case study, the research did not discern a difference between the urgency of acting on climate change for political reasons over security reasons. Put another way, *security* appeared part-and-parcel of the broader arguments being advanced by Obama to act on climate change; they were not held as separate or distinct issues operating on their own time-logics (as was characterised by Rudd and the Australian military where climate security were specifically called-out as long-term prospects). This difference may have been one reason why the US military (or parts thereof) acted in a much more emphatic manner than Australian military to climate change.

To what purpose then, did climate securitisation fit into the broader US climate narrative under Obama? Like Rudd, Obama arguably pursued climate securitisation ostensibly to achieve his *political* climate change objectives. His overarching strategy was to ensure that he met his 2008 campaign-election promises to the American people by being seen to take action on climate change. Thus, and like Rudd, Obama's climate securitisation objective was not an end in itself, but rather a tactic nested within a much broader political strategy. At the broadest level, this was *not* securitisation as conceived by Copenhagen theory where

emergency measures were sought to move beyond rules. Rather, Obama's strategy evolved to become a set of regulatory measures that sought a level of progress, control and governance over a manifestly complex public policy issue. Several examples are explored in the following passages that highlight the trajectory of Obama's climate strategy through the lens of securitisation.

Firstly, from a domestic perspective, Obama initially used climate securitisation as part of his broader strategy to act on climate change as a differentiator between himself and his political opposition. Given that the Bush Administration (and the Republican Party more generally) were largely viewed as sceptical on all matters climate change *and* that the 2008 election campaign coincided with an IPCC honeymoon period in which climate change ranked highly as a US public policy concern, such differentiation undoubtedly built on existing sentiments and further played to Obama's political advantage. This research showed that whereas Bush *never* framed climate change as a security issue, Obama did so with regularity (if not explicitly, then implicitly).[132] Also, Obama was handed something of a political gift in the form of Bush's 2008 climate security directives which played comfortably into his broader climate change agenda.

Following his election, Obama pursued climate securitisation with the aim of building public and political consensus around the subject with the specific aim of favourably influencing the national debate and impressing on Congress the requirement to pass his climate legislation. As occurred in Australia, by framing climate change as an issue of national security importance, Obama sought to "raise the stakes" as though elevating it above (partisan) politics and as a necessary requirement to act in the national interest. In this context, the Administration's signature climate policy, the American Clean Energy and Security Act (the *Waxman-Markey Bill*) was passed by the House of Representatives on 26 June 2009. Reflecting Obama's outlook, the *Waxman-Markey Bill* noted '[g]lobal warming poses a significant threat to the national security, economy, public health and welfare and environment of the United States' and called for the legislation of an economy wide cap and trade system. Indeed, the very title of the Bill (as a *Security* Act) provided a telling example of the importance attached to ensuring climate change was framed as a security issue. In some respects, that climate change was presented as a security issue to the American people

---

[132]   With the exception, of course, of Bush's Climate Security directives outlined earlier.

where *their very own actions* played a contributing role was probably unique in terms of security issues grappled by any US president. Furthermore, the role of securitisation as a means to influence the passage of domestic legislation might be a unique manner in which Copenhagen securitisation theory might be applied.

The timing of the ACES Bill through the House was also arguably about positioning the US to leverage climate commitments from other major emitting nations. Thus, the other audience of Obama's securitisation agenda was the international one. Within a fortnight that ACES was passed by the House, Obama attended a G8 summit that pledged to reduce their emissions by 80 percent by 2050 (Obama 2009i). Success of the bill through the House also delivered an important signal to developing nations (read China and India) that the US was serious about securing a far reaching and binding international agreement at COP 15 (held in November of 2009). To round-out his message to an international audience, Obama spoke forcibly on the international stage—particularly across 2009—by framing climate change as a 'grave', 'serious', 'urgent' and 'growing' threat to international peace and security. This research empirically confirmed this assessment, revealing that of the thirty-three references to climate change as a security issue in the US strategic domain between 2003 – 2013, eleven of these occurred in 2009 (the most of any year) and most were uttered directly by President Obama himself.

In addition to the *Waxman-Markey Bill*, Obama used the American Recovery and Reinvestment Act of 2009 (*Recovery Act*) to present climate change as an especially urgent issue in the aftermath of the GFC. Arguably, the GFC transformed the nature of debate on climate change, not just in the US, but also around the world. Once again, the pragmatic issues of politics—levels of employment/unemployment and the state of the economy overall—dominated the domestic and international agendas. Climate change, prominent from 2007 and through 2008 slipped somewhat from public and political consciousness and was reflected in polling (Pew Research found 'global warming' came in last in a survey of top policy priorities in January 2009 (PEW 2009). Despite this, Obama astutely used the *Recovery Act* to deliver on campaign promises to address climate change by directing tens of billions of dollars in investment toward renewable energy and other climate related projects. By circumstance, the GFC delivered Obama a window of bi-partisan political support that enabled some of his climate commitments to be delivered under the mantra of US economic

recovery. In a domestic context, economic justification (following the GFC) became a dominant narrative and justification for action.[133]

Although the *Recovery Act* was presented as a "win-win" outcome, mixed signals began to emerge. On the one hand, while Obama set about framing climate change as an existential security threat, on the other hand he placed much greater emphasis on framing it under the banner of job creation and economic growth. Thus, when Obama now spoke of emergency measures to solve the so called climate crisis it was primarily in the context of reinvigorating the American economy. The shift in priority was evident: 'If the message is somehow we're going to ignore jobs and growth simply to address climate change, I don't think anybody is going to go for that. I won't go for that' (Obama 2012b). While it may seem obvious that he would steer such a course, a perception emerged that he 'grew timid' in his climate response (Lizza 2010). Also, from a lay-person perspective accustomed to security-deliverance by American hard-power, how was it possible that such a significant security threat had now been passed-over for job creation? When in 2010 the *Waxman-Markey Bill* failed to pass the Senate, Obama experienced a "Rudd moment" whereupon rhetoric began to exceed substantive action. In a pattern of resemblance, Obama turned to "financial reform" while Rudd turned to "hospitals" (Lizza 2010, Chubb 2014b).

The mismatch between the *talk* of emergency measures and an inability (or willingness) to *act* on them was especially evident at the international level. The Kyoto Protocol was a good example. While Obama was inclined to say he favoured the principal of the Kyoto Protocol, he never set about actually taking executive action to ratify it. Similarly, he never pressed the issue on Congress. The failure of the Copenhagen conference, however, was arguably the most significant moment that exposed preference for rhetorical posturing over action. Until this point, the US (through the speech-acts of Obama himself) had helped to frame climate change as an existential international security threat that required immediate global action. However, that Obama, as the dominant presence at the Copenhagen conference failed to secure a credible international agreement reflected not just a sense of US *powerlessness* but also a lack of US *willingness* to actually frame climate change as an issue of sufficient critical

---

[133] Notably, this was not an explicit finding found by the empirical phase of research, but it was evident on re-examining passages that were coded and was an identified shortcoming of the research.

importance, let alone as one of existential global importance. By any measure, when the crunch came, climate change was not presented by the US at this crucial juncture as being above politics nor one that signalled that nations must move beyond normal rules.

What form such action may have taken is open for speculation, but the US has previously demonstrated a propensity to adopt a range of diplomatic, economic or military measures against nations that do not accord to their world-views. None of these options were remotely evident at the Copenhagen conference, where the developing nations (primarily China and India) refused to endorse the more substantial proposals favoured by the West (Lynas 2009). Given that the head of the Chinese delegation later argued that 'our sovereignty and our national interest' were at stake, only served to reinforce the sensitivity surrounding the issue and demonstrate the true limits to which nations—including the US—might pursue action on climate change (Watts and Vidal 2009). All told, US efforts to present climate change as a major international security threat requiring emergency action once again collapsed in the face of *Realpolitik*.

All of this, however, contrasted somewhat with the actions of Prime Minister Rudd and pointed toward a small but perceptible difference in the relative political importance attached to climate change between the two leaders. On Kyoto, while Obama never attempted to ratify it, Rudd had literally signed it within minutes of taking office. In Copenhagen, while Obama used his proxies to do all the dealing until his arrival on the final day, Rudd had personally toiled in-situ (and apparently without rest) for 'three days and three nights' (Rudd 2010b). The personal toll exerted by Rudd at Copenhagen showed when he derided the Chinese delegation: '[t]hose Chinese fuckers are trying to rat fuck us' (Chubb 2014b, 90). His exertion on the issue of climate change had clearly taken its toll and he was reported to have suffered a 'form of breakdown' in the conference aftermath (Chubb 2014b, 90). Although this research never examined such personal aspects in detail, perhaps one small measure of his desperation recorded by this research was the number of occasions that Rudd framed climate change as a security imperative compared with Obama (Rudd framed it on 27 distinct occasions while Obama framed it on nine such occasions).

As Rudd became ever more dependent and politically desperate, Obama navigated a slightly more nuanced pathway that produced a series of smaller but *politically manageable* actions. Critical to Obama's approach was the need to placate powerful interest groups who

represented the spectrum of climate action, both for and against. Ultimately—to break the gridlock—it led to a strategy that favoured executive regulatory action over the Congressional legislative route. Such a strategy had arguably been evident from 2009 (*Executive Order 13514 Federal Leadership in Environmental, Energy and Economic Performance* was a good example) but the doctrine was perhaps best encapsulated in his 2012 State of the Union Address. To those against climate action, Obama argued for an 'all-of-the-above' strategy which simultaneously oversaw an *expansion* of fossil fuel investments that had 'opened millions of new acres for oil and gas exploration' and that 'American oil production is the highest that it's been in 8 years' (Obama 2012a). To those in favour of climate action he declared 'a comprehensive plan to fight climate change' which directed the EPA to cut emissions on future and existing US coal-fired power plants. As was noted by Obama: 'The differences in this Chamber may be too deep right now to pass a comprehensive plan to fight climate change … So far, you haven't acted. Well tonight I will' (Obama 2012a). In essence, however, such a strategy eschewed securitisation.

A concluding observation of US climate change debates was the central importance of *energy* (security, independence, transformation and so on). This research found that energy (framed within the context of climate change) formed the most dominant narrative in US strategic circles (from documents examined). This was particularly the case at the presidential level where roughly one-half of all securitised and non-securitised climate coded frames were done so in the context of energy. Moreover, energy matters (within the context of climate change) remained paramount to both President Bush *and* President Obama. This contrasted somewhat with the situation in Australia and reflected an important difference in emphasis between the progressive governments of each nation. Whereas Rudd framed climate change *less* than Howard had done in relation to energy, Obama actually framed it *more* than his predecessor. What did this mean in practical terms? Firstly, it indicated that Obama actively and deliberately framed climate change in terms of energy in order to establish common ground between those opposing climate action (generally Republicans) and those supporting climate action (generally Democrats). Energy, and particularly ideas of energy independence and energy security, has long represented a unifying issue that both sides of US politics could relate and agree. Framing climate change in this manner credited Obama a degree of (bi-partisan) political capital that he could leverage when pursuing his broader climate agenda. Moreover, linking the 'climate wagon' to the 'energy security horse' made an 'attractive route towards achieving [policy] success' that might otherwise not have been obtained by a

'retice[nt]' American Congress and public (Hayes and Knox-Hayes 2014, 89 & 90). Secondly, the centrality of *energy security* conferred an active role for the US Department of Defense and the US military more specifically. The US military was regularly cited by US politicians as the world's single largest consumer of energy, as a major incubator of cutting-edge energy efficient technologies and as an institution blessed with infrastructure, land and capacity to act as a pre-commercial test-bed for new forms of energy. The US military thus became politically prominent in energy security and climate change debates in a manner not witnessed in Australia.

*

How then, can all this analysis be summarised in terms of the theory? Firstly, in terms of Copenhagen securitisation theory, climate change was never formed in the US as a truly securitised issue (in the sense it is described in the theory). While there were instances that could be considered securitising moves and use of strong language dramatising the urgency, there was no instance where emergency measures beyond rules were actually sought. In the US, this was evident at the domestic level as it was at the international and it also correlated with Matt McDonald's observation of the Australian situation were there existed a gap between political rhetoric and political action (McDonald 2012, 580). And so, while President Obama was strong on the rhetoric of framing climate change as a security issue, he failed to match it with any commensurate or substantive actions that might genuinely have elevated the issue above politics and beyond normal rules. In many respects, merely framing climate change to the US public as a security threat posed many challenges—not least of all communicating to the American public that they bore some responsibility for the very threats the president described. In this sense, framing climate change as a security threat revealed the limits of securitisation.

Obama's unwillingness (and inability) to pursue stronger actions at Copenhagen—even after the lengths he had gone toward actually framing it as an existential and planetary wide threat—was arguably a turning point. Once again, the US case study demonstrated the difficulty of securitising an issue like climate change to the definitions set by the Copenhagen securitisation framework. Limits of securitisation theory were further exposed by the argument that the failure to securitise should be viewed as a *triumph* of politics. In fact, this author would pose the reverse: that the failure to securitise climate change (and thereby

elevating the necessity for action to reduce emissions) might rather be viewed as a *failure* of politics.

Compared to the Paris School framework, the US case study (at the strategic-political level) did display some congruence, particularly on the idea of deepening bureaucratic practices through regulatory action of federal government agencies. A direct (and ironic) consequence of a bureaucratic-led response in the US was to accelerate and expand involvement of the US military. In some respects, whereas ideas of climate securitisation never progressed military involvement, bureaucratisation had succeeded in consolidating the military as an important actor in US climate change (security) discourse. As has been shown, and discussed below, this was especially the case in relation to climate-energy debates and the Arctic.

Given this political backdrop, how did the US military respond to climate change? Also, was there any evidence of securitisation (in spite of the lack of it at the political level)? Lastly, does the Paris School framework offer any insights into the US military climate change response, particularly in terms of bureaucratisation but also on the idea that the US military sought to use the issue for its own purposes and thereby dominate the political elite?

8.6   US Military climate response under centre-left Political Leadership

The US military response—specifically the US Navy response—to climate change was larger, more consistent and more widespread than the response registered by the Australian military. This broad assessment, however, consisted of numerous sub-stratum of issues that, on occasion, highlighted both differentiation but also some similarities. The following sections examine the broad similarities and differences (mainly at the strategic level) between the Australian and US militaries. The final section examines the US Navy response to climate change in detail.

Similarities in Military Climate Response

The strategic levels of the Australian and US militaries exhibited a number of similarities in relation to their climate response. The first was the relative inattention to climate change by the most senior departmental defence officials (although this was *not* the

case with US Navy leaders). This has been already covered from the Australian side, but the lack of articulate discussion on climate change by both the US Secretary of Defense and by the Chairmen of the Joint Chiefs of Staff was also evident. For instance, climate change (in the speeches analysed) was never mentioned by Donald Rumsfeld (2001 – 2006) and Chuck Hagel (2013 – present) and was only mentioned in passing by Secretary Gates (2006 – 2011) and Panetta (2011 – 2013). Gates in particular provided an interesting case study. As the US Defense Secretary, who worked under both Bush and Obama across the peak period of interest in climate change, it is remarkable that he only mentioned climate change on just *four* occasions in five years (from 365 speeches examined) and gives insight into where it ranked in terms of his priorities. Most commentary on the subject found by this research at the most strategic-military level was made by Under Secretary for Defense, William Lynn, whose speeches were only included for analysis on the occasions he formally stood-in for Secretary Gates. In summary, in 807 speeches analysed by this research between 2003 and 2013 for US Defense Secretaries only *six* direct references to climate change were made (this excluded the 11 references made by Under Secretary Lynn). This contrasted strongly with the political sphere, particularly during the Obama presidency, but it was consistent with evidence of the most senior Australian military officials (such as the CDF, Secretary and Service chiefs).

As for the Secretary, so for the Chairman of the Joint Chiefs of Staff. In the 609 speeches analysed (all delivered by Admiral Mullen and General Dempsey) between 2007 and 2013, just 21 direct references were found. Mullen was the most prominent of senior US Defense (military) officials examined to describe the security impacts of climate change in any detail. His replacement, General Dempsey, however chided notions of climate change by casting it alongside 'the Mayan prophecy' and 'life on other planets' (Dempsey 2011). For Dempsey climate change was simply *not* an urgent enough issue that warranted near-term policy prioritisation.

The lack of prominence of climate change in the speech-acts of the most senior US military officials was also reflected in some *military*-strategic publications. The most prominent was the 2011 *National Military Strategy* which only made passing reference to climate change and, in any case, as having only 'uncertain impact' (US DoD 2011, 2). Once again, this contrasted with the urgency, certainty and extent to which climate change was framed in the *political*-strategic publications, notably the 2010 *Quadrennial Defence Review* and the 2010

National Security Strategy (i.e. politically oriented strategic documents). The latter boldly asserting: 'The danger from climate change is real, urgent and severe. The change wrought by a warming planet will lead to new conflicts' (White House 2010, 47). Arguably these publications reflected a difference of priorities. The US political sphere framed climate change as having significant strategic (and military) impacts in near term timeframes that justified an urgent requirement to act (though these were arguably of a political nature). In contrast, the 2010 NMS—primarily the domain of the Chairman of Joint Chiefs—cast climate change as less relevant and as a longer-term issue only. This aspect pointed toward a discrepancy in US military climate policy—with some areas pressing ahead (US Navy) and others acting as though there was nothing happening (CJCS). Such organisational unevenness was comparable to the Australian military situation, and was evidently not a unique circumstance as far as bureaucratic and government institutions were concerned (Hulme 2009).

Related to this, a general trend emerged that while the political sphere in the US and Australia under centre-left governments tended to frame climate change as a matter of policy urgency, the militaries of both nations tended to refrain from casting climate change in such terms. This was even evident in the US Navy where, more than any other agency examined, they progressed climate action with high vigour. Rear Admiral David Titley arguably the most authoritative voice on climate change in the US military noted, 'I am not sure I would call it a crisis. It is a strategic challenge' (Titley 2010a).

Other policy similarities existed. Both the US military and the Australian military were partly framed as "first responders" in the event of major humanitarian aid and disaster relief (HADR). This aspect struck a particular chord following the deployment of either military in response to domestic natural disaster events that came to be increasingly viewed in the context of climate change. That said, HADR arguably had a greater presence and influence in Australian-military climate debates where it became a *leitmotif* of the Australian Labor Party under Kevin Rudd. This contrasted somewhat with the US Navy experience where HADR was but one of many factors. As was noted by the Head of US Navy Oceanography RADM David Titley, climate change was 'more than humanitarian disaster relief' (Titley 2010c, 27).

Perhaps more broadly than HADR, however, both militaries tended to frame climate change as a matter of national security over any other form of security (for example human security

or environmental security). This aspect underpinned the broader Australian and US diplomatic efforts to frame climate change as a security issue in the UNSC, whereupon it was strongly contested by other countries that tended to view climate change from sustainability, economic, social and other such perspectives.

Another broad similarity between the US and Australian military was that climate change became prominent as a security issue from 2008 onwards but tended to decline in (military) prominence from 2011 onwards. That is to say, the issue in a military sense seemed to emerge (2008), to peak (2009) and then decline (2011). In the Australian case study, political partisanship was argued as a major factor for both the rise and decline in the prominence of climate change by that military. In the US case study, additional factors emerged as having significance (to varying degrees, these were also present in the Australian instance, but were arguably less visible). First was the "too busy elsewhere" paradigm in which major revisions of US national strategic and military priorities witnessed operational drawdown from the Middle East, subsequent rebalance toward Asia-Pacific as well as historic reductions in US Defense spending through planned austerity measures but also additional funding cuts, known as sequestration. The second was a declared reframing paradigm by senior US military and civilian leaders moving away from climate change, toward concentrating on concepts of energy security. This was detected as occurring in both the Australian and US militaries but the turn was particularly strident in the US Navy, particularly after about 2011, where Secretary Ray Mabus publicly argued moving away from climate change as justification for his energy transformation plans:

> I think our chances are less certain if we base it on what to most
> people are a little more nebulous ideas like climate change—harder to
> see, harder to understand and harder to qualify (Mabus 2010a).

Given the shift in Obama's outlook on climate change following the failure of the *Waxman-Markey Bill* to pass the US Senate in 2010, Mabus' strategic shift might be interpreted as a response to ensuring he was aligned with the President's broader strategic aims on climate policy.

Thirdly, the majority of studies on the impacts of climate change to the US Military were—by 2011—already underway, were scheduled to occur sometime in the near future or had

already been commissioned or been completed elsewhere (for example from military affiliated institutes, academia, think-tanks or NGOs). A comparison of initiatives underway in the US military as against what was occurring in the Australian military, ultimately revealed major differences in how each military responded to climate change.[134]

Differences in US and Australian Military Climate Response

The US military response to climate change differed to that of the Australian military in several important ways. In the broadest sense, the US military response to climate change was more prominent, more sustained and had far greater organisational penetration in terms of its reach downwards into the organisation and across the various sub-agencies within it. The response was also multifaceted, with a mix of adaptation and mitigation measures evident. On occasion, however, it was difficult to distinguish between US priorities; although climate change was invoked as a pretext for action, deeper examination revealed a combination of justifications for the size and dispersion of action.

The 2010 *National Security Strategy* and the 2010 *Quadrennial Defense Review* stood as milestone documents that heralded a shift in US military thinking on climate change. Until their publication, US military policy had considered climate change largely in economic terms or as part of broader global change issues. Both the 2010 NSS and QDR now identified climate change as a major strategic driver for the twenty-first century (in its own right) with potential to create new sources of instability and exacerbate existing ones (i.e., as a threat multiplier) and/or by directly degrading US military homeland and global estate, facilities, infrastructure, training and testing grounds (i.e., as a burden multiplier). The consideration that climate change might diminish US military global capacity also underlined a fundamental difference between the Australian and US militaries. The Australian military, of limited strategic reach and far smaller geographical footprint had much less to lose in relation to climate threats than the US military through its vast global system of bases, alliances and interests. As a consequence, this research found that the US strategic and military spheres framed climate change in terms of the international context far more than their Australian counterparts. Overall, the 2010 NSS and QDR might be viewed as a defining moment. One in

---

[134]   Another similarity, not entirely addressed by this thesis due to it being out-of-scope, was the absence of the US and Australian Air Forces in climate security discourses.

which the US military signalled its strategic commitment to respond to climate change. The audiences for this signal were twofold: to domestic audiences (departmental but also the political class and American public) and international audiences (other militaries for example).

Preceding the release of these capstone policy documents, however, was Executive Order 13514. An influential order, it directed the US military (amongst other things) to publish an annual strategic sustainability performance plan that placed targets on non-operational US military greenhouse gas emissions and a climate change adaptation roadmap (first published by the US military in 2012). Although both of these aspects have received very little media or scholarly attention they reflected an emerging strategic difference between the response to climate change by both the US and Australian militaries. During the thesis I was able to publish an article "The Securitisation of Climate Change: A Military Perspective" that examined the key differences in further detail (Thomas 2013). Stand out examples were the goals of the US military to reduce Scope 1 and Scope 2 greenhouse gas emissions by 34 percent by FY 2020 relative to 2008 and Scope 3 emissions by 13.5 percent in equivalent timeframes. This was in stark contrast to the Australian military's aborted promise to place targets on its emissions. Another stark difference was the mainstreaming within US Defense departmental processes and procedures such that they would 'fully integrate climate change considerations into its extant policies, planning, practices, and programs' (US DoD 2013a, D-6). The difference between measures undertaken by the Australian military could not be more glaring.

The broad impact of these capstone documents was to lay a strategic framework across the US military that empowered lower-level departments and agencies (such as the service arms) to proceed with developing and implementing their own climate policies. In this context, climate change became (from at least 2009) a leading and legitimate justification for the instigation of a range of new US military energy programs, sustainability initiatives and environmental policies. Furthermore, climate change emerged as a rallying point for elevating the importance of a range of existing and disparate energy/environmental/sustainability programs that might otherwise have remained buried in discreet pockets of the US military bureaucracy. To some extent, climate change revived these programs by providing renewed emphasis and momentum that they might not otherwise have received. (The 2010 QDR provided several examples whereupon it raised the Strategic

Environmental Research and Development Program, Defence Environmental International Cooperation Program, Environmental Security and Technology Certification Program and the Energy Conservation and Investment Program as all contributing to the US military's strategic climate change response. Other examples included US military greenhouse gas mitigation efforts and the use of US military land for green energy initiatives). This was not the case in the Australian military. Whereas the ADF had developed a number of impressive environmental and sustainability initiatives few invoked climate change as a pretext for taking such action.

Moreover, having laid the broad framework, lower levels within the US military underwent a rapid expansion of climate and energy policies (from 2009) that once again contrasted sharply with the Australian experience. Climate change was often a key aspect used to justify the policy action (refer to footnote below for some examples).[135]

This research specifically examined the US Navy climate policy documents in detail, revealing a deep (vertical) penetration and wide (horizontal) spread of climate and energy initiatives within the US Navy. Examples of the vertical penetration of climate policy was evident in *Task Force Climate Change* and *Climate Roadmap* which gave detailed tasking for mid-ranking Navy officers to complete a range of climate initiatives to be funded from 2014 onwards. The horizontal spread was likewise evident whereupon climate action was tasked across US Navy operational, logistical, capability, communications and intelligence portfolios. On the whole these actions pointed more toward the bureaucratisation of Navy Arctic climate change policy rather than one of securitisation. Arguably, these initiatives were only permissible in the political environment established through the election of Obama and built upon by the climate security directives enacted by Bush late in his final term. The vertical penetration and horizontal spread of climate policy within the US Navy once again contrasted sharply with the Australian military where it scarcely impacted.

---

[135]   Examples included the US *Army Energy Initiatives Task* Force (2009), US DoD *Installation Energy Management* (DoDI 4170.11 of 2009), USMC *Facilities Energy and Water Management Campaign Plan* (2009), US Navy *Task Force Climate Change* (2009), US *Navy Arctic Roadmap* (2009), US *Navy Climate Change Roadmap* (2010), US *Navy Energy Vision* (2010), US DoD *Operational Energy Strategy* (2011), US Army *Net Zero Initiative* (2011), US DoD *Operational Energy Strategy Implementation Plan* (2012), US *Army Renewable Energy Development Guide* (2012), USAF *Sustainable Design and Development Implementing Guidance* (2012), US *DoD Climate Change Adaptation Working Group* (2012) and US DoD *Climate Change Adaptation Roadmap* (published as an annex to the US DoD *Strategic Sustainability Performance Plan* from 2012), US Army Corps of Engineers *Climate Adaptation Statement* (2011), revised and updated as the *Climate Preparedness and Resilience Policy Statement* (2014).

A final indication of the significance with which climate change had come to be viewed in US military circles occurred in relation to austerity. When austerity measures were imposed on the US military from 2011 there would have been a reasonable expectation that climate related programs would likely be the first to face cancellation. When asked if his energy and climate goals were attainable in view of 'sequestration', Mabus defiantly responded that 'we cannot afford *not* to do this now' (Mabus quoted in US House of Representatives 2013; emphasis added). Moreover, even in the face of unprecedented budget cuts (and some years after the GFC stimulus), that climate change programs still proceeded gave it a level of priority previously unseen.[136] It contrasted sharply with the Australian military experience.

<div align="center">*</div>

Despite this apparent constructive outlook, this research also detected that US military climate policy was not an entirely altruistic enterprise. In short, beneath the veneer of US military climate policy, *real politik* and self-interest were ever-present. The vigorous manner in which many senior US military and US Defense civilian leaders were forced to defend their climate policies on the grounds that it was *not* an environmental driven agenda but was rather done in the national self-interest differed from the Australian situation. Possibly, it differed precisely because the US military had implemented climate policies beyond what might have been expected of it, particularly from hostile conservatives. This was not evident in the Australian military where its minimalist policy failed to invite sufficient criticism to warrant any such defence.

Two aspects, in particular, hinted of additional motives lying behind US military climate policy. The first was ensuring primacy of US (military) power in the context of global change. Climate change formed a part of this narrative, but so too did a range of global change issues that, since the end of the Cold War, had expanded to include population growth, rapid urbanisation, pollution, cyber, resource depletion and a range of other interconnected, globalised and common security challenges. The Arctic also formed a core part of the broader global change dimension and was particularly associated with the onset of climate change. In this regard, the US Navy began shifting strategic weight toward

---

[136]   An additional factor not considered in detail was the strategic certainty of having a single President who was very supportive of military climate change programs (as distinct from the Australian situation whereupon Rudd was replaced by Gillard who was ousted by Tony Abbott in September 2013).

developing policies and capabilities to ensure Arctic primacy. The Chief of (US) Naval Operations, Admiral Gary Roughead was fervent in his appreciation that the opening of the 'fifth ocean' meant 'trillions in economic potential' which pointed 'undeniably towards a new venue of operations and responsibility' (Roughead 2011b). Undoubtedly, the possibility of its long-term strategic rival, Russia, moving to fill an Arctic vacuum would have provided another incentive. Although the Australian military established a small section to examine global change issues, it never had an "Arctic" that bought climate change into sharp strategic focus that it had in the US military. Though some have tried to present Antarctica as "Australia's Arctic", the two are not analogous for a range of reasons, not least of which is that Australia has no military presence, the location is not (yet) a site of geopolitical contest surrounded by the great powers (US, China, Russia and Europe), Antarctica holds no commercial shipping advantages offered by an ice-free channel and prospects for resource exploitation are negligible given the long standing global treaty and difficult access issues that prohibits such activity.

The second motive behind US military climate policy was its inseparable coupling with concepts of energy security. Although climate change was presented as a factor, the main debates centred on maintaining US (military) energy security in the context of fears of reduced global supply, increasing energy costs and efforts to find efficiencies (savings), particularly after austerity took hold. In some policy areas and in some speeches, military mitigation efforts often appeared as an afterthought. Thus, a contradiction emerged between the seeming altruistic efforts to reduce emissions (for the greater good) against the reality of improving its energy use to cut cost while maintaining global military supremacy. This was particularly the case after about 2010 where it became evident that the broader political strategy on climate change required a makeover.

And so, embedded throughout the various speech-acts on US military climate initiatives came another a clear message: the US military was not responding to climate change purely for environmental reasons, it was responding to protect US national interests and preserve global military dominance. Thus, for Obama, 'the Pentagon isn't seeking these alternate fuels just to protect the environment; they're pursuing these homegrown energy sources to protect national security … *clean energy is about out security*' (Obama 2010; emphasis added). For Secretary of Navy Ray Mabus: 'The Great Green Fleet is not about some environmental agenda. *It is about maintaining America's military and economic leadership across the globe*

in the 21ˢᵗ century' (Mabus 2012c; emphasis added). These factors pointed to a deeper agenda—a 'hidden truth' (Bigo and Tsoukala 2008, 13)—that only emerged in the speech-acts of senior US leaders on rare occasions. It hinted that US military climate mitigation efforts for environmental reasons only were a ruse, that the maintenance of American power was paramount. Though not to be overplayed, these ideas connect with Paris School notions suggesting that, concerning matters of security, politicians and the military alike resort to type by wielding their institutional power to influence national debates to their advantage.[137]

8.7   Chapter Conclusion

The Australian and US militaries exhibited both similarities and differences in their response to climate change. Political influence was a dominant theme where the election of centre-left governments in 2007 (Australia) and 2008 (US) both enabled and prompted (sometimes through regulation but other times through strategic guidance via formal speeches and directives) the respective militaries to take stronger action. In the ADF, however, a strategic response to climate change became still-born as the Rudd Labor government's broader climate policy platforms unravelled. As bi-partisan political support collapsed in 2010, any form of climate policy in the Australian military remained on the margins. In the US, President Obama used climate securitisation as part of his broader climate platform and he built upon the climate security directives enacted by President Bush in late 2008.

Given some political bi-partisanship concerning climate security matters, the US military response became much more emphatic than the ADF. Apart from the political dimensions, this thesis identified three main reasons. First, climate change policy response was tightly coupled to issues surrounding energy security. Thus, when climate action in the US weakened at the political level, mitigation could still be tied to current operational and broader national security interests by ensuring improved warfighting, greater efficiency and reduced operating costs. The long standing nature of energy security as a prominent strategic issue in the US (particularly regarding concepts of energy independence) also resonated with both sides of politics (thereby providing a degree of bi-partisanship). Secondly, climate

---

[137]   For a further discussion of this as it relates to the contemporary neo-liberal period see Dalby, Brauch, and Oswald Spring (2009).

change was largely accepted as the key reason for driving significant change across the Arctic. Australia never had an equivalent geo-strategic location generating such attention; particularly one which borders with a long standing competitor-adversary in the form of Russia. The US Navy used the Arctic as a centrepiece issue to drive a range of climate programs that impacted operations, capability development and other functional areas. In the context of enhancing energy security, reducing emissions, reducing costs and increasing its presence in the Arctic, the US Navy response was therefore framed as something as an opportunity—but there were also indications its motives were not entirely altruistic. The latter of these possibilities contemplated an alternate US military climate response driven by maintaining military dominance and protecting national self-interest in an era of global change. On occasion, such bluntness was revealed in the speeches from the president and was traceable down through the chain of command. The final reason for motivating a larger US military response was the global nature of its operations, bases, infrastructure, alliances and interests. In short, the US had (has) much more to lose and far more at risk if climate change unfolds on a Business-As-Usual trajectory. Relatedly, the US military also advanced climate change as an opportunity to enhance bi-lateral and multilateral relationships. As a far smaller military, both in physical footprint, energy consumption, strategic reach and strategic necessity, the Australian military never had as much at stake.

Chapter 9: Contribution to Knowledge of Securitisation Theory and Research Methods

9.1   Introduction

This chapter critically reviews the usefulness of both the method (section 9.2) and the theory (section 9.3) used during this thesis in the examination of climate change as a security issue in the political-military sectors of Australia and the US. In undertaking this review, the chapter seeks to contribute to securitisation studies and make a series of recommendations for further research.

9.2   Contribution to Securitisation Research Methods

A critical review of this thesis' general research method in the examination of climate securitisation

This thesis adopted a hybridised method to securitisation studies that, to the knowledge of the author, had not previously been undertaken in this particular field. There were three key aspects to the method that are worth highlighting. The first involved the use of a software analysis tool (*NVivo*) to analyse several thousand government published documents over a decade (2003 – 2013). The second aspect was the use of content analysis techniques (including *coding*) that were applied in conjunction with a securitisation framework. The third aspect was the use of textual analysis methods of important and selected documents. This combination of methods ensured a rigorous examination of available documents that possessed a number of strengths and weaknesses. This section briefly reviews what these were and provides recommendations on how future securitisation studies might benefit.

There were three principal strengths of this thesis' method. The first of these was the use of content analysis software *NVivo* that enabled a large amount of sample data to be stored (databased), processed and analysed. This was crucial to developing a method that attempted to *quantify* aspects of securitisation. It enabled this research to answer specific questions such as: How often was climate change framed as an urgent issue? During which years was this done? And, What type of security was climate change framed (e.g., international, national or

human)? Without the use of software to manage such a large-N sample, quantification would have been far more difficult. It also meant that results could be reproduced and, if an outcome appeared doubtful and warranted re-examination, it could be readily interrogated and updated. Of further benefit, the database could also be made available to external or independent researchers.[138] Thus, auditability, traceability, accessibility and reproducibility were important features of this method.

In addition to these aspects, the use of software coding and the securitisation framework enabled the outcomes to be presented in tabulated and graphical format. Though not necessarily integral to the method itself, the ability to graphically represent empirical outcomes from securitisation case studies was unique. Arguably, this technique may enhance how securitisation can be conveyed to research communities as well as political and security analysts, enabling the ability to detect "first mentions", emerging trends and step-changes through time.

The second strength of this method was the supplementary use of textual analysis (aided by software) to examine documents. The use of software aided the process of textual analysis in a number of ways. It reduced hard-copy printing requirements (saving on cost and minimising waste), allowed for passages of text to be highlighted and "copy and pasted" for ready reference and it enabled the author to quickly search large tracts of text and pinpoint exactly where climate change was being discussed in thousands of documents, some at considerable page length. This was particularly useful, for example, when examining Parliamentary Hansards at (often) hundreds of pages in length. The process of textual analysis, however, also added a richer and fuller narrative to be developed which served two important aspects. First, it gave context to the empirical findings. Numbers alone were insufficient to tell the story. Second, where empirical findings were unable to be determined (for example, speeches of junior and middling military officers were difficult to access and obtain), then textual analysis of documents gave additional context and meaning to these omissions. On occasion, it was not what *was* said, but what was *not* said that was insightful.

---

[138]   *Nvivo* has an online function which enables remote researchers to log-in and conduct their own coding and analysis—though this research did not use the online tool since it only involved a single researcher.

The third (and final) strength of this method was the easy access to large amounts of information across a long (decadal) duration. The use of the open source internet to download thousands of speeches and other material meant that research preparation was low-cost, quick and covered a sufficient organisational depth and breadth. These aspects proved their particular worth during the US case study where once there might have been a requirement to either travel or attain hard-copy material. The longitudinal nature of this research also enabled securitisation to be examined across different governments (which in this instance covered both centre-left and centre-right). This proved an important aspect because it meant that climate securitisation trends could be analysed against political outlook or ideology.

Having overviewed the method strengths, there is equal if not more value, in reviewing method weaknesses. First, in the context of a single researcher operating remotely from parent university resources, this particular method required access to stable IT infrastructure with capacity to run the software and to store the data. While all the research for this thesis was performed on a standard home office personal computer, it was not without limitations. One example was that the author's Personal Computer (PC) lacked the processing speed to complete certain functions or requests. For example, once coding was completed the main analysis involved *NVivo* processing specific matrix requests (e.g., 'Display total codes, by year, for all securitisation categories framed as a security threat'). Initially, a single database was developed (for each case study) within which requests could be made of *NVivo*. It readily became apparent, however, that because of the lack of PC processing power each database had to be re-formatted into smaller and smaller file sizes (the original file size was in the order of 10 Giga-Bytes (GB), while the later files used for processing were in the order of 0.5GB). The lack of PC stability also became an issue, with the author's PC "crashing" or failing on many occasions to complete more complex requests. Complex requests could also be time consuming, with requests ranging on average from anywhere between five to twenty-five minutes, sometimes more. Overall, these issues might have been resolved had the PC been more powerful or, ideally, the database (and software) was placed on a more powerful server and then accessed remotely. The placement of the database on a centralised server would also have enabled the coding to be easily accessed and verified by an independent researcher.

Secondly, the lack of an independent check against coded passages of text could impact on the overall confidence of the results. Although this author-researcher examined each line of

coded text on two (and sometimes three) occasions and developed a set of coding rules to filter ambiguity, there remained the issue of subjectivity, coding-error as well as lines (codes) simply being missed as a result of having too narrow a word search function or other researcher error. Another aspect of coding was the inherent difficulty of assigning coded passages of text into the relevant area of the securitisation framework. This was crucial, since the empirical research results depended on how text was allocated within the framework. For example, a single paragraph within a single document might have contained lengthy descriptions of climate change framed in multiple and ambiguous ways. In some instances, this could be further complicated when such ambiguity might appear on multiple occasions within the same document and replicated across other documents. To complicate matters further, certain passages of text were also repeated verbatim from the strategic to the tactical level.

Replicability would be improved through independent verification checks, re-analysis of part or all codings by the researcher as learning occurs and by third-parties using increasingly formal criteria. By extension, automatic coding may be considered through the application of an algorithm to search for pre-defined combinations of securitisation text. While the development of an automated method would require specialist resources (e.g., computer programming skills, statistical skills) and introduce its own complexities (Ruedin 2013) it may reduce cost, subjectivity, limit inherent bias, produce results faster and—providing formatting overheads were minimised—potentially enable a much larger sample size (Grimmer and Stewart 2013). All up, the inherent challenge of coding passages of text will always have an element of imprecision. For this reason, securitisation research performed in this manner will always be an *approximation* to political and military securitisation processes rather than held as an absolute account.

The exclusive use of the internet to access open source research material also had positive and negative consequences. First, while enabling ready access it was found that the further "back in time" that this research "reached", the less material (i.e., online content) there was available. Substantially, this was unavoidable since the period under examination (2003 – 2013) occurred at a particular (and probably unique) time in history which experienced increased growth in network and server infrastructure to support online content as well as the identification and tasking of human resources to place material online. Presumably, this aspect will improve over time as more and more content is placed online. The second aspect

regarding over-reliance on the internet concerned the unevenness with which speeches (in particular) were made available from different levels within the military bureaucracy. For example, while high-level marquee speeches by a General were readily available, low-level speeches by a Colonel or a Major were not as commonly archived nor accessible. Furthermore, the more obscure the position holder, the less likely he or she had their speeches archived online. This was also evident in the particular area of the bureaucratic organisation—some areas were heavily populated with online content while other areas were sparse. Scarcity was also a feature within the junior ranks of the military where there are practically no speeches online. This directed the research to make use of their written material, particularly from journal articles and official magazine interviews. Notably, since journal articles were not considered official departmental policy *per se*, the concepts discussed were often more radical and revealing, than the set piece speeches of senior military and civilian bureaucrats. In this sense, they were somewhat double-edged and some perhaps could not be considered authentic representations of military or government views. Overall, the empirical analysis tended to break-down as the material analysed became increasingly diluted and obscure. When this occurred, the method tended to rely almost exclusively on textual analysis (e.g., see "Opinion pieces on Climate Change by mid-ranking ADF Operational and Tactical Officers" and "Climate change in ADF Doctrine" in Chapter six).

Another aspect of reliance on the internet was the point that during the course of the research it was also found that online material moved—on occasion it was removed from the internet altogether or was found at a different URL. Thus, while the ephemeral nature of the online environment made it difficult to reference, it did trigger the early development of an independent stand-alone database.[139] In addition to this, it was found that online content format did not always match that required by *NVivo*. For instance, this research downloaded several hundred speeches by senior officials in the US Administration, including the president, from a particular website only to discover that it was not possible to use the word search function in *NVivo* because of incorrect formatting within the document itself (e.g., a typical sentence might been converted as follows: 'C l ima te Ch a nge is a th rea t to nation al securi ty' [sic]. In this fashion, no reference to climate change would have been detected).

---

[139] The National Library of Australia 'Pandora' online archived web site system proved very useful from a researcher perspective.

Aggregated across hundreds of speeches this became a major issue and required the author to find alternate URLs that provided the same content but in appropriate format. Relatedly, it was found that *NVivo* was not particularly stable when examining Microsoft Word documents. Thus, in an effort to improve stability but also to compress file size, all documents were converted to Adobe ".pdf" format. Lastly, the somewhat exclusive use of electronic material meant that the research excluded the use of hardcopy material. While it may have been technically possible to digitise hardcopy, it was determined early during the development of the method that the cost versus benefit was unfavorable.

Having examined some of the procedural strengths and weaknesses of this thesis research method, the following section examines its epistemological strengths and weaknesses—that is, it examines the suitability of the research method to examine securitisation (using the Paris and Copenhagen approaches) and the suitability of the theories themselves as tools to examine securitisation.

9.3   Contribution to Climate Securitisation Theory

The strengths and limitations of this thesis' research method to examine climate securitisation using Paris School approaches

At its foundation, the Paris School based on works by French philosopher Michel Foucault, adopts a critical perspective to securitisation studies. Unlike the Copenhagen School, the Paris School approach has no defined framework nor specific boundaries to guide researchers. It is, in some respects, a more philosophical approach, asking researchers to adopt a more historical, contextual and iconoclastic attitude. Foucault's works have also been variously described as difficult to access and contradictory (Mills, 2003). His wide array of subject matter also makes it difficult to label him a specialist in any one discipline; let alone security studies. By his own admission, Foucault argued 'in France you ha[ve] to be, as a philosopher, a Marxist or a phenomenologist or a structuralist, and I adhere to no one of these dogmas' (Foucault quoted in Mills 2003, 3 - 4). Not surprisingly, there remains no defining or authoritative securitisation text book as was written by Buzan and others for the Copenhagen School, a la *Securitisation: A New Framework for Security Analysis* which articulates the framework's precise boundaries. The lack of accessibility, high orders of

complexity and ambiguity as well as the interdisciplinary nature and refusal to be pigeonholed have resulted in the Paris School generating less scholarly attention in the field of securitisation studies.

With the exception of works by Didier Bigo, the Paris School does not offer an expansive or clear framework containing guidelines for researchers attempting to examine securitisation. One example of this is understanding the relationship (or difference at least) between *securitisation* and *militarisation*. Does securitisation infer an inevitable militarisation of an issue (or vice versa). If so, under what conditions? Also, what are the consequences of this occurring and does it produce positive or negative outcomes (and if so, then for whom)? Such a framework or, at least, a more expansive pamphlet detailing Foucault's key thoughts and their relationship to securitisation (and militarisation) studies, would be useful for future research in this field.

Despite this, the Paris School can be considered an important approach, since—unlike Copenhagen School—it specifically asks researchers to look beyond the published speech-acts of declaratory policy and other published works of the government and bureaucracy and into the broader (inner) workings and discourses of state bureaucracies and institutions (particularly the security institutions). Angela Oels (2012) called this an examination of security practices 'below the threshold of exceptionality'; that is, to question and examine those aspects that are not exceptional and otherwise appear as mundane and routine (or even "hidden" from public view by nature of their classification), but when uncovered, examined and aggregated (across different levels within a bureaucracy and between institutions and even different countries) may have much larger meaning, (possibly) purpose and consequence.

Betsy Hartmann has written along similar themes in relation to the encroachment of US national security institutions in climate change. She warned of a 'militarisation of climate change' in which a 'research industry is starting to grow up around climate change and violent conflict' (2009, 2 & 7). Hartmann wrote:

> Climate change is becoming the great connector between
> environmental risk and security risk. As one of the most urgent global
> issues of our time, it also possesses a universal appeal that could help

to provide a sense of historical purpose to a US defense establishment weary from the protracted wars in Iran and Afghanistan. Does that mean climate change is destined to become the next major threat after terrorism? Highly doubtful. But it does have the potential to become a rationale for US intervention, especially in the 'failed states' and 'ungoverned spaces' of Africa (Hartmann 2009, 4).

In this regard, Hartmann observed, 'I have seen too often how problematic neo-Malthusian ideas take easy root in policy circles and then grow like rhizomes, popping up in multiple places' (Hartmann 2009, 13). Hartmann argues that militarisation of climate change tends to distract policy makers (and the public) from making genuine efforts to combat the root cause of climate change (i.e., GHG emissions reductions) and also reduces the role fulfilled by actors other the military (e.g., other government agencies such as US Aid and non-government organisations) in areas such as humanitarian aid and disaster relief. Ultimately, opening the door to military involvement in these policy areas may have the effect of clouding the judgment of elected officials, restrict policy flexibility and produce deleterious consequences.[140] Gerrit Kurtz endorses the Paris School as the preferred sociological approach for its deeper examination of discourses *within* security institutions. That is, it ranges beyond mere speech-acts and takes into account 'dominant storylines, narratives and substantial context of the discourse' (Kurtz 2012, 671).

In undertaking further discussion, the following paragraphs outline two opposing perspectives on the underlying validity of the Foucauldian position. To provide a degree of objectivity, the first perspective questions the very underlying basis of Foucault's doctrine while the second provides a more sympathetic outlook. Discussion then extends toward examining the methodological limitations of researching government institutions from the perspective of sympathetic Foucauldian doctrine.

The Paris School might be viewed from two very different approaches. One approach—the critical approach—posits that the citizens of liberal democratic states such as the US and Australia have no real reason to feel threatened by the inner workings of state security

---

[140] David Halberstam's (1972) critical assessment (*Best and Brightest*) of the US military in the escalation of the Vietnam conflict during the Kennedy and Johnson Administrations throughout the 1960s offers a stark account of this point.

bureaucracies since they (i.e., the security bureaucracies) are constitutionally subordinate to elected political officials. Put another way, there are sufficient checks and balances within the particular political and military institutions of the US and Australia that specifically limit the role of the military-security complex from dominating civilian political authority or the broader instruments of state. Similarly argued, there are also commensurate checks and balances on the extent to which the civilian executive can use the military-security complex to pursue ways, means and ends (that are unsanctioned by the majority of the state's citizens). *Ipso facto*, that politicians are elected by the state's citizens then it is the citizens that remain the ultimate arbiters of state security policies. Indeed, it is the citizens themselves which fulfil the roles and tasks of the state security institutions. In this critical reading of the Foucauldian view, history itself stands as evidence to the broad harmony with which the Australian and US political and military spheres have worked alongside one another with few genuine schisms; neither country examined by this thesis appears to be controlled by the security establishment and neither has ever suffered a coup where the intelligence and military wings might operate in conjunction to overthrow executive rule. Likewise, both states maintain strong democracies with relatively low levels of corruption and (comparatively) high degrees of individual freedom.

This is not to say that the security institutions have not been, and will continue to remain, influential in politics and society, but it is to recognise their accepted place and limitations in these particular democracies. Drawing on the work of Samuel P. Huntington (*The Soldier and The State)*, Elliot Cohen concluded in his book *Supreme Command* that '[t]he overall record of the American military … remains one of complete "subordination and loyalty" to the Constitution' (Cohen 2002, 225). For Cohen, although 'there is nothing obvious or inevitable about the subordination of the armed forces to the wishes and purposes of the political leadership' there are 'many reasons, including the acculturation of the military itself, and the presence of numerous countervailing forces and institutions' that render a 'normal theory' of the relationship between the military and its civilian leadership (2002, 225 - 226). Ultimately, these arguments reject Paris School approaches which state that such is the power of the 'professionals of unease' that they may 'openly criticize the politicians and political strategies of their respective countries' to bolster their own positions (Bigo and Tsoukala 2008, 13). This would rarely occur in the normal theory of Huntington and Cohen and if it did, then the political sphere quickly (re)asserts itself. Examples they may cite might include President Truman's sacking of Douglas MacArthur or more recently President Obama's dismissal of

Stanley McChrystal in Afghanistan. While only illustrative, these examples are indicative of the asymmetrical power structure of the 'normal' or 'objective' theory of civil-military relations. Thus, and contrary to the Paris School, the normal theory places the political sphere in 'the dominant positions' (Bigo and Tsoukala 2008, 14).

From this viewpoint, the Paris School may almost be viewed akin to a theory in search of a conspiracy; unnecessarily questioning of the foundational institutions of state and as providing intellectual justification of groups such as Wiki-leaks or individual whislteblowers (e.g., Edward Snowden) in challenging a vast but very delicate intelligence-security establishment that exists to *protect* its citizens from security threats. This is particularly relevant to Foucault's ideas on control and surveillance. In the contemporary global order, the expanding role of the internet in a globalised political, social and economic web represents both opportunity and vulnerability. Opportunity in the sense that the intelligence-security apparatus might exploit its comparatively vast resource base (in terms of access to educated workforce, training and technological systems) and position and authority within the bureaucracy to influence legislation to its own advantage, thereby adding (legal and regulatory) legitimacy to its actions. Recent debates in Australia and US over the powers of the security-intelligence apparatus to trawl electronic records with no warrant serves as a relevant example to this point. In contrast, increased electronic interaction may increase the vulnerability of state security apparatus on the basis that information can be more readily accessed and distributed with far more ease than the pre-digitisation era. In specific relation to military involvement in climate change, the default position of the critical view is to accept that militaries will have an increasing role to play in humanitarian aid and disaster relief as climate change increases the frequency, intensity and scale of climate related natural disasters. This will be particularly relevant in states that have low capacity to respond to disasters and marginal adaptation capacity but also for great power states where climate change affects their national interests. The example of the US Navy increasing their presence and operational capabilities across the Arctic is relevant in this instance. Put another way, such military programs are a fully justified and legitimate response by the state to protect its national interests.

In sum, this perspective is worth serious consideration, since it challenges the very premise of Foucauldian doctrine that appears missing from many scholarly works which draw inspiration from it. It asks: Is Foucault relevant for securitisation studies? If so, what is its

usefulness over other critical perspectives? And, what are its biases? Is it relevant to climate securitisation studies where the issues are so diffuse that the military is simply incapable of 'monopoliz[ing] the truth' (Aradau et al. 2006, 457).

The alternate viewpoint of the Paris School is more accommodating and sympathetic to Foucauldian doctrine. This *sympathetic* view places a premium on the rights of citizens to be made fully aware of bureaucratic (and political) actions of the security establishment that may differ from declared policy or established norms (which the citizens have had the opportunity to influence through the ballot or through lobbying of their federal members of parliament). Where this is not possible, then the Foucauldian doctrine calls for a full and open political discussion on the *consequences* of various policies that might emerge as a result of seemingly benign, routine and often disparate measures. In both of these senses, transparency is crucial. The sympathetic perspective also accepts the iconoclastic rationale of the Paris School, it (also) uses history as justification to support its case and would contend that the security institutions are today deliberately exploiting the growth of electronic surveillance, networks and a sympathetic executive in the post 9–11 era to their *own* advantage but to the detriment of democracy and individual liberty. In relation to the securitisation of climate change, the Paris School approach is wary of such agendas. It might view securitisation as Hartmann has outlined above—that climate securitisation distracts from the very real requirement of reducing emissions (mitigation) and adaptation measures for the most vulnerable. Likewise, climate securitisation might be viewed as the thin edge of the military wedge whereupon the securitisation of climate change becomes (at worst) a militarisation of climate change or (at best) justification for spurious military programs which have the appearance of being in the public good but only serve to strengthen the military role *vis-a-vis* other departments of state or non-government organisations or "the people".

From the sympathetic Foucauldian perspective, the method adopted by this thesis had three significant limitations. The first concerned the inability to *access* classified or sensitive government material but also other grey literature produced (and used) by the security bureaucracy to justify its practices. Put another way, this research only examined a fraction of unclassified materiel that was placed in the public domain by government security agencies. It was, in many respects, an examination only of those aspects the government (and military) *wanted* or permits the public to see. Paris School theorists Didier Bigo and Anastassia

Tsoukala, for instance, have written of the security apparatus creating a 'regime of truth' and a 'hidden truth' (Bigo and Tsoukala 2008, 13), but the inability to assess classified or sensitive material below the government's classification "boundary layer" arguably prevents a genuine assessment of 'the truths': *why* the bureaucracies took certain decisions, *why* leaders made certain speeches and *why* the various agencies developed certain programs or adopted certain practices. Arguably, for reasons often made under the rubric of "national security", but also for a range of other (legitimate) reasons (e.g., commercial confidentiality, protection of the national and public interest), occasionally vast differences can exist between internal (government) decision making processes against the publicly stated reason. Noting that some decisions, practices, actions, reports and so on are *never* made public—even with the passage of time. When this researcher approached the Office of National Assessments (ONA), for example, to access to one of its assessments on climate change, ONA responded that the report was not releasable nor was it subject to the normal government conditions of Freedom of Information (FOI) whereupon it might be expected to be released in ten or twenty years. Moreover, the reasons why a government (either the political arm or military arm) might decide to restrict information may in fact—once *all* the variables are considered—be a perfectly defensible and *legitimate* position. This is not to suggest that there may not be adverse consequences for some, but it is to argue that a decision or practice was taken for *the need to serve greater good*. But to reach this position, to best approximate to the "truth", it is best made possible by accessing and analysing information from both classified and non-classified sources.

Such discussion raises the question: what method might overcome the so-called classification boundary layer issue? And, if suitable methods exist, were it possible that these could have been incorporated into this thesis or are they opportunities for future research? Also, does increased transparency of such classified material aid researchers in threading together the possible implications of various security policies, decisions and actions? Operating within domestic legal and regulatory frameworks, there appear few solutions to the first of these questions. Nevertheless, several are briefly discussed here. First, research may overcome the boundary layer by applying for information under FOI or by waiting for information to become declassified. Such an approach, however, may be of limited benefit if the research is time critical or the researcher lacks resources. This may be partially true of climate change, where the coming decade has been cited by scientists as being particularly critical to ensuring that policies are implemented to ensure that global emissions peak by 2030 – 2040. In

addition, requests made under FOI and awaiting the lifting of classified material will always be compromised to some extent by the point that the decision on *which* information to release still remains the remit of government. In this situation, the same problem exists in so far that the government may only release what is favorable to it, not what is necessarily the complete account. Lastly, some information within certain government agencies or departments (and having high levels of classification) is *never* releasable. This raises the prospect that a researcher may still only be privy to a partial picture thereby skewing a proper assessment.

A second method to overcome the boundary layer issue may be to conduct interviews with current or ex-government employers (including civilian, military and political staff) in the attempt to try and elicit additional information above and beyond that which has already been released. Whistleblowers aside, these can be of limited value since public sector employers are bound by legally enforceable confidentiality agreements that prevent the release of classified information or information that might be prejudicial to the state or institution they serve (even after they leave the sector).[141] Nevertheless, qualitative data from interviews might have at least corroborated some aspects of this thesis, particularly where the discussion took on a speculative or counterfactual approach.[142]

A third method (somewhat related to the second) is for researchers to analyse classified material that has been placed in the public domain by individual whistleblowers or whistleblower organisations. Wikileaks is arguably the world's foremost example of the latter, but even this is not without its limitations. One limitation, for example, is that much of the material currently available on Wikileaks relates to embassy cable traffic and does not necessarily contain content relating to relatively low level and routine decisions, actions and papers from deeper within departmental bureaucracies. In addition, the range of subjects on Wikileaks is relatively small compared with the vast range of possible research subjects. This researcher found, for example, that climate change within military bureaucracies, for instance, is not common on the Wikileaks site.

---

[141] A good example of the state clamping down on government employees speaking to the media on sensitive issues is given by Australia's policy of mandatory detention for "illegal" refugees who are transferred to detention centres in Australia, Nauru and Papua New Guinea. The centre-right government of Tony Abbott enacted legislation in 2014 which made government employees liable to prosecution with penalties including of up to two years in jail for speaking out on such issues.

[142] The Centre for Policy Development report *The Longest Conflict: Australia's Climate Security Challenge* (2015) conducted a number of interviews with Australian military personnel that reflected the findings of this thesis.

Finally, even if confidential material on a certain subject from a specific agency were made publicly available even this may present a distorted picture of why a bureaucracy acted in the manner it did. This relates to the point previously made that snippets of information, regardless of their classification, only provide a partial picture of the decision making process. A confidential memo from one agency might have been countered by a confidential memo from a separate agency or even a separate memo from an area within the same agency. Thus, unless a researcher has access to *all* information, a complete picture is simply not possible. Of course, access to *all* information is also not practicable. For these reasons, researchers are confronted with genuine methodological challenges when attempting to analyse government bureaucracies along Foucauldian lines. On this basis, a longer-term strategy may be to engage military bureaucracies via democratic-political process to ensure that military-intelligence assessments—within the bounds of commercial-in-confidence— concerning climate change be made transparent to the public. As a minimum, this would involve releasing key strategic assessments regarding climate change and national security (for example, the one cited in this thesis that was produced but never released by ONA). Such an outcome may increase confidence that the politicians, intelligence agencies and the military alike are not using climate change for their own agenda, but rather acting on the basis that climate change presents a universal challenge that requires a multi-faceted policy response.

Nevertheless, the counter argument to this analysis is that it is not necessary to examine the reasons why a particular security bureaucracy adopted a certain position or undertook a certain action but rather to only look at the overall outcomes of its policies and then examine the broader consequences and policy trajectory over time. Thus, and as was alluded to earlier in this section, the key to designing a research methodology using a Foucauldian approach is to aggregate the various security establishment policy initiatives into a general narrative and then to analyse its (real and projected) impacts and consequences. In this respect, and in regards to climate change as a security issue, central questions that emerge here relate back to Hartman's thesis that the militarisation of climate change spawns justification for military intervention into areas that may not require it or have otherwise encroached into aspects previously led by other institutions or areas of bureaucracy.

The second major critique of this thesis' research method as applied against the Paris School was the exclusive focus on the political and military sectors of specific nations (in this case,

the US and Australia). In this regard, the narrow sectoral and national focus tended to create a limited outlook which obscured the broader transnational 'professional alliances' required of securitisation studies, and particularly the Paris School (Buzan, Wæver, and de-Wilde 1998, Aradau et al. 2006, Bigo et al. 2008, Oels 2012). Nevertheless, if the narrowness of this thesis represents a weakness, then it becomes an opportunity for future research. One suggestion is to examine how national militaries are forming networks and agendas on the issue of climate change (particularly around the issue of humanitarian aid and disaster relief) and whether this is consistent within traditional alliance frameworks or whether it is being used as an avenue to create new military relationships. For example climate change and HADR may be an issue that enables the US and Chinese militaries to work together on a common cause that may serve to reduce tensions which have arisen over the more traditional security threats.

The third major critique of this research was that it tended to focus on the exclusive examination of what programs, decisions, practices *had* occurred but neglected the opportunity to understand their broader impacts and consequences. For Angela Oels, this aspect is crucial to the Paris School approach whereupon the value is not to assess practices as 'good or bad' but rather to reveal the 'practices and policy implications of specific security dispositifs, and in doing so highlight unintended and problematic developments' (Oels 2012, 198). Somewhat ironically, one unintended consequence has been the disproportionate media coverage given to military pronouncements on climate change. In this sense, militarisation of climate change tended to raise the political profile of climate change thereby hastening requirement to act through mitigation or adaptation. There have been numerous examples of this in the US, and illustrated in the Australian case by a 2014 speech given to the Lowy Institute by Lieutenant General David Morrison where the majority of media coverage given to his speech (otherwise on general strategy) was a brief response to a question that climate change posed a risk to low lying states as a consequence of sea-level rise (ABC 2014). Moreover, in the Australian instance the military has attempted to remove itself from the issue of climate change due to its highly politicised nature. This has had the effect that when the military *does* comment, then it tends to gain significant media attention, thus drawing attention to the broader requirement for government action (on mitigation or adaptation). In contrast to Oels' 'problematic developments' (2012, 198), it is equally plausible to look for 'positive developments' or opportunities. The previous example might be considered in this light.

Another example might be the finding that because climate change is such a ubiquitous issue, touching every sector and facet of society, the military has been simply unable (and unwilling) to 'monopolise the truth about danger and unease'(Aradau et al. 2006, 457). This has largely been the case because the military are not the arbiters of knowledge on the subject, they are reliant upon the broader scientific community which, as a result, diminishes their institutional ability to control the information and use it for their purposes. Paris School theorists should be championing this point and consider that their approaches need not only be viewed in pejorative terms; there are also opportunities. Potentially, such uncritical adherence to Paris School doctrines have boxed scholars into thinking that any militarisation is a negative, but this may not necessarily be the case. As such, this aspect stands as a point for future research.

A concluding observation is that the very design of this thesis' aim and method tended to favour a Copenhagen School approach over a Paris School one. The very nature of how the securitisation tables were designed and the focus on speeches were both consciously done with Copenhagen aspects of foremost interest, including the use of language, the framing of debates, the urgency of policy measures that sought to determine if it were being treated as an 'existential threat' and 'above politics'. From this perspective, this thesis has only partially addressed the many varied and nuanced aspects contained in Foucault's governmentality philosophies. Future research in this area would serve well to examine Olaf Corry's concept of "riskification" as distinct from "securitisation". Attention now turns to examining Copenhagen School approaches.

The strengths and limitations of this thesis' research method to examine climate securitisation using Copenhagen School approaches

The Copenhagen School's securitisation theory is the most widely used framework in understanding how issues progress from being a political issue to a securitised one (and back again). The introduction to this thesis provided an overview of its main tenets—fundamentally that for a threat to become securitised and therefore 'above politics' it needs to be presented as an 'existential threat to a referent object by a securitising actor' who then 'generates endorsement of emergency measures' that sees actors to move 'beyond [normal] rules' (Buzan, Wæver, and de-Wilde 1998, 5). Understanding its impact on an audience is crucial and, according to the originating authors, it is only through their eyes that

securitisation can be truly perceived. This section briefly examines the strengths and limitations of this research method applied to the Copenhagen approach. The aim of this is to build on existing securitisation studies knowledge and inform future researchers on potential advances in securitisation methods.

The first identified strength of this research method (as applied from a Copenhagen lens) was the ability to analyse material below the level of exceptionality. The introduction to this thesis highlighted that Angela Oels was critical of Copenhagen approaches that tended to focus securitisation solely on exceptional circumstances by actors in emergency situations. Didier Bigo (2002) and Huysmans (2006) similarly argued that this risked missing the everyday 'effects of power that are continuous rather than exceptional' (cited in Buzan and Hansen 2009, 217). Recognising this from the outset, this method adopted a far broader remit that sought to analyse securitisation as it occurred in the routine speeches, policy acts, doctrine, media releases and so on of the political and military bureaucracy. It also sought to examine lower levels in the bureaucracy who—through bureaucratic presence (expertise, process ownership and technical skill)—tend to have *some* influence on political policy making. Although this was not without risk (as addressed above), it did in some respects attempt to establish a method that bridged the key elements of Copenhagen and Paris School approaches. A second strength of this method was the ability to answer one of the fundamental Copenhagen tenets of 'who securitizes, on what issues (threats), for whom (referent objects), why, with what results, and not least, under what condition' (Buzan, Wæver, and de-Wilde 1998, 32). The coding of text, over long-time frames and within a database enabled securitisation data to be presented and analysed in such a way that made answering these questions arguably more efficient, reliable, precise and traceable than previous methods.

Two key methodological limitations—in the context of Copenhagen approaches—were identified from this research. The first and most significant limitation in this research method, from the Copenhagen School perspective, was that it did not examine the audience. For the Copenhagen approach, securitisation can only occur 'if the audience accepts it as such' (Buzan, Wæver, and de-Wilde 1998, 25). By this definition, it was not possible (based on this research) to conclude whether climate change was successfully securitised or not. Nevertheless, there are several dimensions to this that are worth exploring. On the one hand, it could be argued that the securitisation pronouncements by the *political* arm had a

significant impact on the *military* arm. Viewed in this light, the military sector itself becomes something of an audience to the political securitisation pronouncements (and policy actions). From this vantage, this research offered some insight into audience "acceptance" of political attempts at climate securitisation within a domestic context. In the Australian case study, the military was somewhat reluctant and hesitant to participate in the Labor party's politicised climate securitisation agenda. In the US case study, although the US military (specifically the US Navy) were far more active, they too ultimately produced climate policies and spoke of climate security *within* the boundaries set by their political masters. Nevertheless, identifying the military sector as an audience *per se* is possibly stretching the Copenhagen concepts too far. A more realistic assessment of audience perceptions on climate securitisation by the US and Australian political-military sectors might have been to examine how it were perceived in non-allied Annex B (UNFCCC) nations such as Indonesia, China, India, Russia and so on. Ultimately, it was these nations that remained suspicious of Western attempts to frame climate change as a security issue (particularly via debates in the UNSC). Further research on climate securitisation and audience perceptions would be warranted in this context.

A second limitation of this thesis was the failure to examine climate de-securitisation. But, this was justified on the basis that climate change was never a fully securitised issue. Nevertheless, the prospect of climate change as an issue transitioning through an idealised Copenhagen spectrum from 'normal' politics to 'securitised' and back to 'normal' politics over a short period of time raises challenging questions for Copenhagen School theory. How, for instance, does Copenhagen School securitisation theory accommodate the long time-scales of climate change as an unfolding security issue? How is the incrementalism of climate change, an issue that works slowly across many decades but must be dealt with early on to avoid the worst possible outcomes, reconciled by a theory which says that urgent and existential threats 'should be dealt with decisively' (Buzan, Wæver, and de-Wilde 1998, 29)? Apart from the prospect of tipping points, the rapid transition from one modality to another remains an unlikely scenario against general climate change trends. Justification of emergency measures, placed in this context, become problematic for politicians to sustain.

Furthermore, many security issues are also often geographically localised events. Climate change—by contrast—is transboundary, global and with uneven effects depending on where a person lives and the capacity for their country to respond. As noted, the temporal effects are also slow to build up, but with the spectre of a potentially "big-bang" within generations. Put

simply, climate change as a security issue is difficult to analyse from a Copenhagen perspective because it does not act, evolve or translate along the familiar lines of more common securitised issues. This argument was captured by Gerrit Kurtz: 'Although [Copenhagen securitisation theory] fits well with issues like immigration or the fight against terrorism … it hits its limits once it comes to environmental issues and climate change' (2012, 670).

For this thesis, such discussion raises the challenge of conceptualising the militarisation of climate change within current Copenhagen securitisation theory. Indeed, does militarisation necessarily constitute securitisation? If so, what indicators are useful in describing this? Also, can militarisation actually be constructive? In the case of climate change, this research raised the prospect that the military was invoked to raise the profile of climate change so that it might impress upon politicians the need to collectively act sooner rather than later to reduce emissions and begin adaptation responses. Given the strategic imperative to act on climate change, can its militarisation, in particular circumstances, actually be a force for global good? It raises the idea that militarisation and securitisation—in some situations—may not be entirely 'negative' as the Copenhagen School proposes (Buzan, Wæver, and de-Wilde 1998, 29).

A specific example might be the gradual militarisation and securitisation of the Arctic whereupon developments by the US Navy and other countries may actually *improve* the security, economic and political outlook of the region through increased engagement on areas such as search and rescue, HADR, recovery, construction and environmental protection. Thus, rather than militarised or securitised issues always framed as necessarily *destructive*, might there be instances where securitisation is actually *constructive* to collective security?

From these discussions this thesis proposes an alternate Copenhagen model to that conceptualised in the introduction at Figure 1. The revised model suggests that complex cross cutting issues like climate change may constitute a unique form of securitisation—a Constructive Securitisation—whereby its militarisation does not necessarily infer progression toward conflict or even make an existing situation worse. This conceptualisation therefore defines two forms of securitisation. Destructive Securitisation, characterised by unilateralism, highly contestable actions, hidden (secretive) agendas involving aggressive and punitive moves by mainly military or paramilitary combat forces. Once deployed, this form of

securitisation may rapidly escalate to conflict and is not able to de-escalate to Constructive Securitisation. The other is Constructive Securitisation, characterised by multi-lateralism, joint cooperation, transparency and confidence building measures which may (in the military sense) involve non-combative force elements oriented around issues like search and rescue, disaster relief, aid distribution, infrastructure development and other capacity building measures. Constructive Securitisation may transition to Destructive Securitisation but it may also exist as a condition in its own right, enhancing security within and between nations. The temporal aspect of Constructive Securitisation is also not as critical, since it does not have the spectre or perception that conflict be a defining part of the continuum. Put differently, Constructive Securitisation might exist as a securitised modality for long periods of time without an expectation for it to evolve into conflict for resolution—of itself, it can be the status-quo. Contextualised in this way, Constructive Securitisation neuters those debates (viz Daniel Deudney and Betsy Hartmann) which portray any military involvement as a 'colonization of climate change' and 'with the risk of imposing an authoritarian approach, secrecy, and illiberal practices' (Trombetta 2012, 159). This model clearly does not provide all solutions or nuances to the complexities of how issues become securitised,[143] but it may represent one way of initiating new discussion and research on how some environmental issues can be conceptualised within the Copenhagen securitisation model. Figure 25 illustrates this proposed model.

---

[143] For instance, how would "constructiveness" be measured? What are the indicators? In whose interests would it be "constructive" and from whose perspective (e.g., nature or humankinds)?
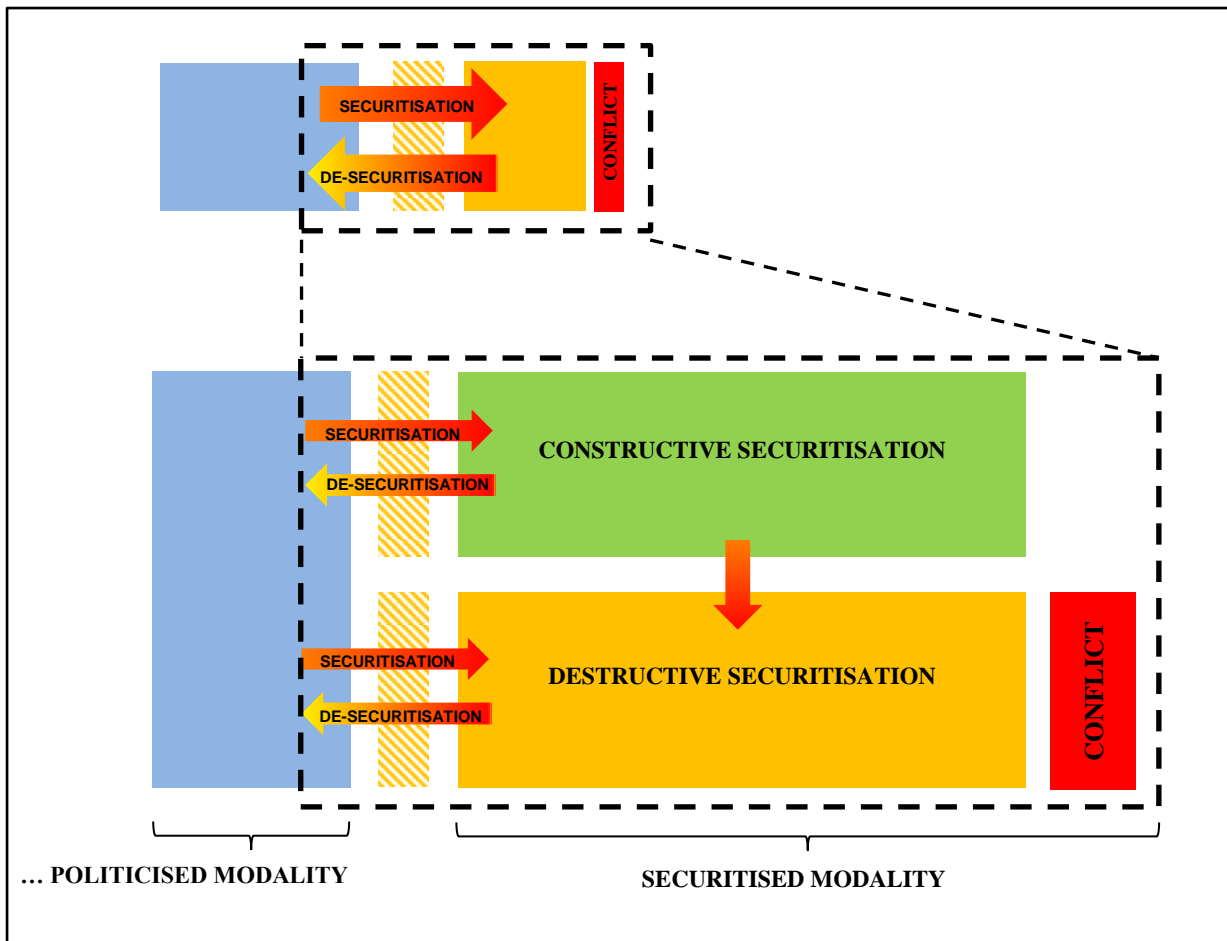
Figure 25. Constructive and Destructive Copenhagen Securitisation model. At the top is the current Copenhagen framework (less non-politicised part as shown in Figure 1). The new framework shows securitisation may include different forms.

9.4   Recommendations for Future Climate Securitisation Research

Methods. Based on proceeding discussion, the following points contain general recommendations and lessons learnt on climate securitisation research methods:

a.   For research of large sample sizes and utilising qualitative content analysis tools (such as *NVivo*), it is recommended that the main database be stored on a centralised server of sufficient size with the aim to improve processing speeds, reduce limitations on file size (documents examined) and facilitate access by independent researchers (including third-party coding).

b. Depending on the research budget and scope (including time, money and human resource) consideration should be given to employing an independent researcher to validate coding. The utilisation of an independent coding assessor increases the confidence of research results.

c. Manual coding text from large-N samples (thousands of documents) remains an *approximation* rather than an *absolute* representation of securitisation processes. Future securitisation research should explore the benefit of using algorithms to conduct coding.

Research Areas. Based on this chapter's discussions and earlier observations, the following general recommendations on future climate securitisation research areas are made. Future research should:

a. Examine the extent and the implications to which global military forces are forming networks, alliances, research communities and strategic agendas (capability and operations) on the issue of climate change. A key aspect is to consider if this is consistent within traditional alliance frameworks or whether it is being used as an opportunity to establish new military-to-military relationships. These relationships could be further analysed in the context of whether they are Constructive or Destructive in their securitisation framing and outlook.

b. Identify and explore potential opportunities, benefits and/or positive developments that might arise for particular communities (e.g., scientific research organisations) or nations from the militarisation and/or securitisation of climate change. Relatedly, this research could examine the opportunities presented by Business-As-Usual climate change for particular countries and their militaries.

c. In the context of Copenhagen School approaches, examine the impact of securitisation acts on a particular audience. Specifically, to understand how non-securitising nations (particularly China, India and other major emerging nations) are responding to climate security and securitising nations.

d.   Conduct research of non and pro-securitising nations other than the US and Australia—and analyse the influence of political ideology on framing climate change as a securitised issue.

PART V

CONCLUSION

Chapter 10: Conclusion

This thesis set out to examine the securitisation of climate change within the political and military sectors of Australia, with a comparison to the United States. Using two well-known analytical frameworks—the Copenhagen School and Paris School—the thesis adopted a hybridised qualitative and quantitative method that analysed a large sample of documents from across the political and military levels. Research results indicated both differences and similarities in climate securitisation. In Australia, climate change became a security issue with the election of a centre-left government from late 2007 (Australian Labor Party led by Prime Minister Kevin Rudd and then Julia Gillard). Previous to that, the centre-right government, led by Prime Minister John Howard, did not view climate change as a security issue. This was also the pattern in the US where the Republican President George W. Bush never framed climate change as a security issue but it was then subsequently framed as such by the Democrat President Barack Obama from 2009. Contributing factors—other than ideological framing—included the point that climate change gradually rose to greater prominence in US security circles from 2003 but took-off notably from 2007 upon the release of a number of highly publicised reports and subsequent scholarly literature, think-tank publications and media articles. Securitisation was also evident around this time in major international and regional fora including divisive high-level discussions at the United Nation's General Assembly and Security Council.

The ascendancy of centre-left governments in Australia and the US favourable to climate action witnessed a significant uptake in the respective military climate responses. In the US military this was far more pronounced where strategic guidance in high-level capstone national security documents signalled approval for large-scale uptake by the lower levels within the military services and military-bureaucracy more broadly. Arguably, the US military with a long standing and pervasive interest in energy security, came to associate climate change both as a *threat* to its global strategic interests (in terms of sea-level rise, extreme weather, resource competition and so on) but also as an *opportunity* to absolve itself from the tether of fossil fuels and shift its energy basis toward a larger proportion of renewables (including nuclear, solar, geothermal, wind biofuels) for both its mobile platforms and its static bases. A sense that climate change was opening the Arctic was also a major driver in US military efforts on climate change. Underpinning this outlook, however, was the

maintenance of US global supremacy in a time of rapid global change and the requirement to find cost savings in a time of fiscal austerity.

Overall, the US military did not seek to securitise climate change as a means to pressure politicians into adopting extraordinary measures. Accordingly, it never convincingly framed climate change as an existential threat but rather as a broader socio-political and national security challenge requiring a strategic, consistent and long-term approach. In this regard, the US military adopted a range of measures designed to enhance its resilience to climate change but that simultaneously increased its competitive edge over other militaries. Its focus on the Arctic stood out as the prime example. In this context only, the US military arguably *militarised* climate change in the context of national security discourse. It was, to some extent, a 'climatization of the security field' whereupon the US military was 'instrumentalized for adjusting the national security apparatus to new tasks by creating new military missions' (Oswald Spring and Brauch 2011, 1493).

Notwithstanding, while some measures might be construed as encroaching into areas over which the military had no traditional role, there were other aspects that may ultimately yield important outcomes. Increased research and development investments and large scale roll-out of renewable energy programs and infrastructure was one such example. Another was the implementation of programs and policies aimed to reduce US military greenhouse gas emissions. Indeed, the role of the US military as an incubator for transformational technology has historical precedent and its ability to deliver transformational renewable technology, or as a minimum, a secure market for commercialisation, cannot be dismissed lightly (DiPeso 2010). The political influence that the US military has exerted—by the very fact of even addressing climate change in some form or another—also cannot be downplayed (particularly where linked to investments and jobs). As a minimum, the very act of the US military raising the issue of climate change might normalise the issue, thereby setting the feasible political conditions in which Republicans can use it as a means to legitimately act on emissions reductions. Lastly, the notion of militaries expanding their HADR capabilities and commitments might also be viewed as a positive development; if increases in extreme weather unfold, then there are few institutions capable of offering the kind of large scale rapid response required during disaster relief. If this so happens to expand military-to-military engagement then this may likewise be regarded in a positive manner and as a means to reducing tensions in other intractable traditional security areas. Such a perspective is now evident in the 2014 US *Quadrennial Defence Review* that has shifted from a narrow

perspective of how climate change might impact US military infrastructure to understanding how the US military might use it to contribute to capacity building in vulnerable countries. US Pacific Command (PACOM) partnering with small island developing states (recent examples include Kiribati and Maldives) to enhance engineering support against climate change induced degradation is one example (Olson 2014). More significantly for global security, this may be a centre ground for the US and China to act as a force for good throughout the Asia-Pacific.

The overarching trend here was the importance of the US military in establishing climate change as a mainstream national security issue that contributed to the development of new mechanisms and established norms. The creation of new normative standards—whereby climate change has been registered as a mainstream national security issue requiring resolute action—may be extended to emphasise other forms of security, including human and environmental.

Despite this assessment, the 2016 US presidential election will bring greater clarity of the longer term commitment of the US military in climate change discourses. If—as occurred in Australia—a centre-right party wins the next federal election (i.e., the Republican Party), then it might be anticipated that the US military "role" in climate change will be scaled back. If this were to occur, then the Australian example might prove a timely case study. In this instance, while the Australian military expanded its climate change response in an effort to meet the government's agenda, it then retreated from having larger involvement as the political situation became increasingly partisan. This situation gave rise to the difficulty of an *apolitical* institution responding to what became a *polticised* security issue. Thus, climate securitisation lost all momentum following the failure of the Copenhagen conference and a domestic political stand-off to deliver Prime Minister Kevin Rudd the legitimacy to force his centrepiece Carbon Pollution Reduction Scheme through the upper house of the Australian Parliament. Perforce, while it continued to be framed as a national security issue in the major national security publications (2013 *Defence White Paper* and 2013 *National Security Strategy*) the Australian military was largely absent from the national discourse. This situation was reinforced with the election of a centre-right government in late 2013 which set about repealing much of the broader climate change agenda implemented under the previous centre-left government. This has not just been limited to social and economic policy sphere, but also in the security sphere.

Having made this assessment, it can now be asked—is this situation desirable? Moreover, *if* climate change was (and remains) an existential threat and *if* the current decade represents the critical decade to avoid these threats, then it may become increasingly difficult for the Australian military to continue to justify its minimalist climate change strategy? Should it play a more proactive role? If so, what is this role and do notions of climate-securitisation have any relevance in elevating it as a policy priority? More broadly—and looking to the future—does the Australian military and associated federal intelligence and assessment institutions have a unique obligation to extricate themselves from the *politics* of climate change, but not beyond its democratic processes, so that they might conduct the necessary strategic planning and provide the public an unfettered appreciation and clearer picture of the security risks involved? This assessment directly resonates with what US political scientist Richard Betts characterised as the susceptibility of government agencies to 'illegitimate politicization' that 'fabricates or distorts information to serve policy preferences or vested interests' rather than the greater good (Betts 2005, 57). It suffocates the universal norm that 'intelligence judgements be more objective, non-partisan, and scientific than other judgements' (ibid). Thus held, what are the broader implications for Australian strategic policy and how might climate change affect the future relationship between the military, the government and the people (particularly where the security threats continue to be viewed in such a partisan manner)? Navigating these strategic challenges will require political *nous*, since: 'How does the military, hoping to develop intellectual grit, manoeuvre around the very institution that feeds it?' (Terreu 2014).

This thesis has shown how the Australian military was confounded on the issue of climate change. Unable to publicly express its strategic concerns with any genuine authority it largely stood as a silent witness to Australian climate policy debates. Despite this, the next Defence White Paper by the Liberal-National coalition government must be carefully scrutinised and compared with previous Defence policy positions (on climate change). Based on the wider research and specific findings in this thesis, it is expected that the next Defence White Paper will continue to omit or downplay climate change as a security issue and reframe it in ways that suit the political agendas of the Liberal and National parties (i.e., one that favours a minimalist climate change strategy).

Such a minimalist reframing is already underway. Former Prime Minister Tony Abbott (2013 – 2015) in his September 2014 Statement to Parliament on National Security did not mention climate change once; while 'terrorism' garnered fifteen references (Abbott 2014). Former Defence Minister David Johnston under then Prime Minister Abbott also avoided any reference linking climate change to increasing causes of instability or (in)security. 'Natural disasters', 'humanitarian aid', 'disaster relief' (without their link to climate change) and MacKellar-esque observations that "the weather has always been unpredictable and harsh" have euphemistically filled the void. While reframing climate-security in such a manner may be viewed as offering short-term political advantages, it is counter to the strategic response required and the increasing volume of scientific evidence that shows an acceleration of the underlying causes of anthropogenic climate change and its attendant security implications. Paradoxically, the next Defence White Paper therefore represents an *opportunity* for the ADF to distinguish itself as an apolitical institution by *expanding* on its existing statements regarding climate change and laying a basis for a more comprehensive strategic response nested within broader social, economic and community based climate strategies. If this remains beyond the limits of the ADF given the partisan politics, then the inclusion of climate change in lower-order military strategy and planning documents could prove equally effective. In this respect at least, the ADF would be more consistent with, and complimentary of, its key strategic ally in the US military.

*

The original authors of the Copenhagen securitisation theory stated that understanding securitisation is more difficult when it is 'moved out of the military'(Buzan, Wæver, and de-Wilde 1998, 1). This may or may not be so, but as the role, influence and capacity of military institutions in responding to climate change unfolds there should be recognition that this remains a nascent discourse that presents both opportunity and risk. The irony of this situation should not be lost. Militaries, ostensibly designed to protect *us* from *them*, now seem incapable of protecting us from *ourselves*. Military institutions across the world must reflect deeply on this, and question what their contribution will be to addressing this unprecedented strategic challenge.

Appendices

Appendix 1. Case Study Document List (digital format available only).

Appendix 2. ADF Case Study Supplementary Information

Appendix 3. US Case Study Supplementary Information

BIBLIOGRAPHY

Abbott, Tony. 2010. *Tony Abbott joins The 7.30 Report*. Interviewed by Kerry O'Brien, recorded 2 February 2010. Canberra: Australian Broadcasting Corporation. Accessed on 2 June 2015, http://www.abc.net.au/7.30/content/2010/s2808321.htm.

Abbott, Tony. 2014. "Statement to Parliament on National Security." In *Transcripts of the Prime Minister of Australia*, 22 September 2014. Canberra: Commonwealth of Australia. Accessed on 15 December 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-23844.

ABC. 2014. "Australia's Chief of Army says ADF needs to plan to help the region with effects of climate change." Published online: Australian Broadcasting Corporation. Accessed on 10 October 2015, http://www.abc.net.au/news/2014-02-20/an-aus-army-chief-says-climate-change-great-challenge-of-time-f/5271404.

Adger, W. N., J. M. Pulhin, J. Barnett, G. D. Dabelko, G. K. Hovelsrud, M. Levy, U. Oswald Spring, and C. H. Vogel. 2014. "Human Security " In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by C.B. Field, CV. R. Barros, D. J. Dokken, K. J. Mach, M. D. Mastrandrea, T. E. Bilit, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea and L. L. White, pp. 755 - 791. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Agamben, Giorgio. 2005. "What is a Dispositif? ." The European Graduate School. Accessed on 4 February 2013, http://www.egs.edu/faculty/giorgio-agamben/articles/what-is-a-dispositif/part-3/.

Alexander, Natalie. 2011. "Climate Change on radar." In *Defence Magazine*, edited by Michael Weaver, vol. 3, pp. 30 - 31. Canberra: Department of Defence. Accessed on 12 April 2013, http://www.defence.gov.au/defencemagazine/editions/2011_03/mag.pdf.

Altman, Dennis, Joseph A. Camilleri, Stephen James, Anthony Burke, Matt McDonald, David Mickler, Gerhard Hoffstaedter, and Chris Roche. 2012. *Why Human Security Matters: Rethinking Australian Foreign Policy*. Sydney: Allen & Unwin.

ANAO. 2014. *The Auditor-General, Audit Report No. 24 2013-14 Performance Audit: Emergency Defence Assistance to the Civil Community*. The Auditor-General's Department. Canberra: Commonwealth of Australia. Accessed on 23 September 2015, http://www.anao.gov.au/~/media/Files/Audit%20Reports/2013%202014/Audit%20Report%2024/AuditReport%20_2013-2014_24.pdf.

Andrews, Anthony. 2009. *Department of Defence Facilities Energy Conservation Policies and Spending*. Congressional Research Service. Washington, DC: US Government Printing Office. Accessed on 11 November 2013, http://www.fas.org/sgp/crs/natsec/R40111.pdf.

Aradau, Claudia, Thierry Balzacq, Tugba Basaran, Didier Bigo, Philippe Bonditti, Christian Büger, Stephan Davidshofer, Xavier Guillaume, Emmanuel-Pierre Guittet, Jef Huysmans, Julien Jeandesboz, Matti Jutila, Luis Lobo-Guerrero, TaraMcCormack, Maria Mälksoo, Andrew Neal, Christian Olsson, Karen Lund Petersen, Francesco Ragazzi, Yelda Sahin

Akilli, Holger Stritzel, Rens Van Munster, TrineVillumsen, Ole Wæver, and Michael C. Williams. 2006. "Critical Approaches to Security in Europe (CASE): A Networked Manifesto." *Security Dialogue*, vol. 37, no. 4:443 - 487. doi: 10.1177/0967010606073085

An act making supplemental appropriations for job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and State and local fiscal stabilization, for the fiscal year ending September 30, 2009, and for other purposes. American Recovery and Reinvestment Act (ARRA). 111th US Congress, H.R. 1, Public Law 111-5, 17 February 2009. Accessed on 3 March 2013, http://www.gpo.gov/fdsys/pkg/PLAW-111publ5/html/PLAW-111publ5.htm.

Arrhenius, Svante. 1896. "On the Influence of Carbonic Acid in the Air upon the Temperature on the Ground." *Philosophical Magazine and Journal of Science*, vol. 41, no. 5:237 - 276.

Asian Development Bank. 2010. *Responding to Climate Change in the Pacific: Moving from Strategy to Action*. Pacific Studies Series: Manila: Asian Development Bank. Accessed on 18 July 2012, http://www.adb.org/sites/default/files/publication/28008/responding-climate-change.pdf.

Aulich, Chris. 2010. "It was the best of times; it was the worst of times." In *The Rudd Government: Australian Commonwealth Administration 2007-2010*, edited by Chris Aulich and Mark Evans, pp. 3 - 15. Canberra: ANU E Press. Accessed on 15 June 2013, http://press.anu.edu.au/apps/bookworm/view/The+Rudd+Government%3A+Australian+Commonwealth+Administration+%092007+-+2010/5091/ch01.xhtml.

Austin, John L. 1962. *How to do things with words: The William James Lectures delivered at Harvard University in 1955*. Edited by J. O. Urmson. London: Oxford University Press.

Australian Army. 2009. *Adaptive Campaigning: Army's Future Land Operating Concept*. Department of Defence. Canberra: Directorate of Future Land Warfare. Accessed on 12 October 2011, http://www.army.gov.au/Our-future/Publications/Key-Publications/Adaptive-Campaigning.

Australian Army. 2014. *Future Land Warfare*. Department of Defence. Canberra: Directorate of Future Land Warfare. Accessed on 14 July 2015, http://www.army.gov.au/~/media/Army/Our%20future/Publications/Key/FLWR_Web_B5_Final.pdf.

Australian Bureau of Statistics. 2008. *Year Book Australia: A comprehensive source of information about Australia*. Vol. 90, *Australian Year Book*. Canberra: Commonwealth of Australia.

Bächler, Günther, David J. Eaton, Joseph W. Eaton, Malin Falkenmark, Partha S. Ghosh, Jad Isaac, Nurit Kliot, John Markakis, Robert Mayor, Katrina S. Rogers, Vaclav Smil, Kurt R. Spillmann, Ashok Swain, Peter Wallensteen, and Arthur H. Westing. 1995. *Environmental Crisis: Regional Conflicts and Ways of Cooperation*. CSS Environment and Conflicts Project: 14. Zurich.

Baechler, Günther. 1998. *Why Environmental Transformation Cause Violence: A Synthesis*. Environmental Change and Security Project Report: Washington. Accessed on 3 March

2013,
http://mercury.ethz.ch/serviceengine/Files/ISN/136079/ichaptersection_singledocument/09d81081-c39f-4930-b3f0-337f6b47113d/en/ch_3.pdf.

Baer, Paul, Tom Athanasiou, Sivan Kartha, and Eric Kemp-Benedict. 2010. "Greenhouse Development Rights: A Framework for Climate Protection That Is "More Fair" Than Equal Per Capita Emissions Rights." In *Climate Ethics: Essential Readings*, edited by Stephen M. Gardiner, Simon Caney, Dale Jamieson and Henry Shue. Oxford: Oxford University Press.

Baker & McKenzie. 2011. *Local Council Risk of Liability in the Face of Climate Change – Resolving Uncertainties A Report for the Australian Local Government Association*. Sydney: Australian Local Government Association. Accessed on 10 October 2015, http://www.environment.gov.au/system/files/resources/d9b2f9cf-d7ab-4fa0-ab0e-483036079dc7/files/alga-report.pdf.

Balzacq, Thierry. 2005. "The Three Faces of Securitization: Political Agency, Audience and Context." *European Journal of International Relations*, vol. 11, no. 2:171-201.

Barker, T., I. Bashmakov, L. Bernstein, J. E. Bogner, P. R. Bosch, R. Dave, O. R. Davidson, B. S. Fisher, S. Gupta, K. Halsnæs, G.J. Heij, S. Kahn Ribeiro, S. Kobayashi, M. D. Levine, D. L. Martino, O. Masera, B. Metz, L. A. Meyer, G. J. Nabuurs, A. Najam, N. Nakicenovic, H. H. Rogner, J. Roy, J. Sathaye, R. Schock, P. Shukla, R. E. H. Sims, P. Smith, D. A. Tirpak, D. Urge-Vorsatz, and D. Zhou. 2007. "Technical Summary " In *Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by B. Metz, O. R. Davidson, P. R. Bosch, R. Dave and L. A. Meyer. Cambridge, United Kingdom: Cambridge University Press.

Barnett, Jon. 2003. "Security and climate change." *Global Environmental Change*, vol. 13, no. 1:7 - 17. doi: 10.1016/S0959-3780(02)00080-8.

Barnett, Jon. 2009. "Environmental Security in the Asia-Pacific Region: Contrasting Problems, Places, and Prospects." In *Facing Global Environmental Change Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Béchir Chourou and Heinz Krummenacher, vol. 4, pp. 939 - 950. Berlin: Springer-Verlag.

Barnett, Jon, Richard A. Matthew, and Karen L. O'Brien. 2010. "Global Environmental Change and Human Security: An Introduction." In *Global Environmental Change and Human Security*, edited by Richard A. Matthew, Jon Barnett, Bryan McDonald and Karen L. O'Brien, pp. 3 - 32. Massachusetts: The MIT Press.

Barrie, Chris, Will Steffen, Alix Pearce, and Michael Thomas. 2015. *Be Prepared: Climate Change, Security and Australia's Defence Force*. Sydney: Climate Council. Accessed on 20 September 2015, https://www.climatecouncil.org.au/uploads/fa8b3c7d4c6477720434d6d10897af18.pdf.

Bartin, James T., and Larence Van Bibber. 2011. *Alternative Fuels for Military Applications*. Santa Monica: RAND Corporation. Accessed on 17 March 2014, http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG969.pdf.

Beckett, Margaret. 2007. "The Case for Climate Security." London: Royal United Services Institute. Published online 10 May 2007. Accessed on 10 January 2013, http://www.rusi.org/events/past/ref:E464343E93D15A/info:public/infoID:E4643430E3E85A/.

Bergin, Anthony, and Jacob Townsend. 2007. *A change in climate for the Australian Defence Force*. Special Report: 7. Canberra: Australian Strategic Policy Institute. Accessed on 12 February 2013, https://www.aspi.org.au/publications/special-report-issue-7-a-change-in-climate-for-the-australian-defence-force/SR7_climagechange_ADF.pdf.

Bernard, H. Russell, and Gery W. Ryan. 2010. *Analyzing Qualitative Data: Systematic Aproaches* California: SAGE Publications.

Betts, Richard K. 2005. "Politicization of Intelligence Costs and Benefits." In *Paradoxes of Strategic Intelligence: Essays in Honor of Michael I. Handel*, edited by Richard K. Betts and Thomas G. Mehnken, pp. 57 - 76. Portland: Frank Cass Publishers.

Bigo, Didier. 2002. "Security and Immigration: Toward a Critique of the Governmentality of Unease." *Alternatives: Global, Local, Political*, vol. 27, no. 1:63 - 92. doi: 10.1177/03043754020270S105.

Bigo, Didier. 2006. "Security, Exception, Ban and Surveillance." In *Theorizing Surveillance: The panopticon and beyond*, edited by D. Lyon, pp. 46 - 68. Davon: Willan Publishing.

Bigo, Didier. 2008. "Globalized (in)security: The field and the ban-opticon." In *Terror, Insecurity and Liberty: Illiberal practices of liberal regimes after 9/11*, edited by Didier Bigo, Elspeth Guild and R. B. J. Walker, pp. 10 - 48. Abingdon: Routledge.

Bigo, Didier, and Anastassia Tsoukala. 2008. "Understanding (in)security." In *Terror, Insecurity and Liberty: Illiberal practices of liberal regimes after 9/11*, edited by Didier Bigo, Elspeth Guild and R. B. J. Walker, pp. 1 - 9. Abingdon: Routledge.

Bigo, Didier, Anastassia Tsoukala, Laurent Bonelli, Emmanuel-Pierra Guittet, and Christian Olsson. 2008. *Terror, Insecurity and Liberty: Illiberal practices of liberal regimes after 9/11*. Edited by Didier Bigo, Elspeth Guild and R. B. J. Walker, *Routledge Studies in Liberty and Security*. Abingdon: Routledge.

Blackaby, Frank, Frank Barnaby, Raimo Vayryen, Egon Bahr, Mary Kaldor, Mary Rothschild, Jerome E. Wiesner, Sverre Lodgaard, Martin Saeter, and Johan J. Holst. 1986. "The Concept of Common Security." In *Arms and Disarmament: SIPRI Findings*, edited by Marek Thee. Oxford: Oxford University Press.

Blasing, T. J. 2012. "Recent Greenhouse Gas Concentrations." Carbon Dioxide Information Analysis Centre (CDIAC). Accessed on 28 January 2013, http://cdiac.ornl.gov/pns/current_ghg.html.

Bodansky, Daniel. 2010. "The Copenhagen Climate Change Conference: A Postmortem." *The American Journal of International Law*, vol. 104, no. 2:230 - 240.

Bodansky, Daniel, Urs Luterbacher, Matthew Paterson, Kal Raustiala, Ian H. Rowlands, Ronald Mitchell, Detlef Sprinz, and Hugh Ward. 1996. *International Relations and Global Climate Change*. PIK Report: 21. Potsdam: Potsdam Institute for Climate Impact Research.

Accessed on 5 March 2013, http://www.pik-potsdam.de/research/publications/pikreports/.files/pr21.pdf.

Booth, Ken. 1991. "Security and Emancipation." *Review of International Studies*, vol. 17, no. 4:313 - 326. doi: 10.1017/S0260210500112021.

Bourdieu, Pierre. 1969. "Intellectual field and creative project." *Social Science Information*, vol. 8, no. 2:89 - 119. doi: 10.1177/053901846900800205.

Boxer Report. 2008. *Report together with Minority Views (America's Climate Security Act of 2007)*. 110th Congress, Report 110 - 337. Washington, DC: US Government Printing Office. Accessed on 8 April 2011, http://www.gpo.gov/fdsys/pkg/CRPT-110srpt337/pdf/CRPT-110srpt337.pdf.

Brauch, Hans Günter. 2008. "Securitizing Climate Change." 50th ISA Annual Convention, New York, 17 February 2008. Accessed on 28 March 2011, http://www.afes-press.de/html/Brauch_ISA_NY_2.2.2009.pdf

Brauch, Hans Günter. 2009a. "Human Security Concepts in Policy and Science." In *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Bechir Chourou and Heinz Krummenacher, vol. 4, pp. 965 - 990. Berlin: Springer-Verlag.

Brauch, Hans Günter. 2009b. "Introduction: Facing Global Environmental Change and the Sectorolization of Security." In *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Gunter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Bechir Chourou and Heinz Krummenacher, vol. 4, pp. 21 - 42. Berlin: Springer-Verlag.

Brauch, Hans Günter. 2009c. "Securitizing Global Environmental Change." In *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Bechir Chourou and Heinz Krummenacher, vol. 4, pp. 65 - 102. Berlin: Springer-Verlag.

Brauch, Hans Günter. 2011a. "Concepts of Security Threats, Challenges, Vulnerabilities and Risks." In *Coping with Global Environmental Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*, edited by Hans Gunter Brauch, Úrsula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Bechir Chourou, Pal Dunay and Jorn Birkmann, vol. 5, pp. 61 - 106. Berlin: Springer-Verlag.

Brauch, Hans Günter. 2011b. "Security Threats, Challenges, Vulnerabilities and Risks in US National Security Documents (1990 - 2010)." In *Coping with Global Environmental Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*, edited by Hans Günter Brauch, Ursula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Bechir Chourou, Pal Dunay and Jorn Birkmann, vol. 5, pp. 249 - 274. Berlin: Springer-Verlag.

Brauch, Hans Günter, Simon Dalby, and Úrsula Oswald Spring. 2011. "Political Geoecology for the Anthropocene." In *Coping with Global Environmental Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*, edited by Hans Gunter Brauch, Ursula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Bechir Chourou, Pal Dunay and Jorn Birkmann, vol. 5, pp. 1453 - 1486. Berlin: Springer-Verlag.

Brauch, Hans Günter, and Úrsula Oswald Spring. 2011. "Introduction: Coping with Global Environmental Change in the Anthropocence." In *Coping with Global Environmental Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*, edited by Hans Gunter Brauch, Ursula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Bechir Chourou, Pal Dunay and Jorn Birkmann, vol. 5, pp. 31 - 60. Berlin: Springer-Verlag.

Brauch, Hans Günter, and Jürgen Scheffran. 2012. "Introduction: Climate Change, Human Security, and Violent Conflict in the Anthropocene." In *Hexagon Series on Human and Environmental Security and Peace*, edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link and Janpeter Schilling, vol. 8, pp. 3 - 40. Berlin: Spinger-Verlag.

Brauch, Hans Günter, Jürgen Scheffran, Halvard Buhaug, Ole Magnus Theisen, Peter F. Nardulli, Kalev H. Leetaru, Dan Smith, Janani Vivekanandra, Michael Link, Janpeter Schilling, Jasmin Kominek, Maria J. Trombetta, Michael Brzoska, Angela Oels, Judith Nora Hardt, Linda Wallbott, Delf Rothe, Tasos Karafoulidis, Tore Rorbaek, Frank Biermann, Ingrid Boas, Cord Jakobeit, Chris Methmann, Ursula Oswald Spring, Steve Wright, Dennis Kumetat, Andy Spiess, Achim Maas, Kerstin Fritzche, Clemes Messerschmid, Joshua W. Busby, Todd G. Smith, Kaiba L. White, Shawn M. Strange, Beth Njeri Njiru, Oscar Edoror Ubhenin, Paul Isolo Mukwaya, Hannington Sengendo, Shuaib Lwasa, Pedram Rowhani, Olivier Degomme, Debarati Guha-Sapir, Eric F. Lambin, Mustafa Saroar, Jayant K. Routray, Sujan Saha, Ruchi Mudaliar, Parul Rishi, Syed Mansoob Murshed, Mohammed Zulfan Tadjoeddin, Anis Chowdhury, Achim Maas, Alexander Carius, Gerrit Jurtz, Bo Kjellen, Peter Wallensteen, Dennis Tanzler, Felix Ries, and Tagelsir Mohammed Gasmelseid. 2012. *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*. Edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link and Janpeter Schilling. Vol. 8, *Hexagon Series on Human and Environmental Security and Peace*. Berlin: Spinger-Verlag.

Brown, Lester R. 1986. "Redefining National Security." *Challenge*, vol. 29, no. 3:25 - 32.

Brzoska, Michael. 2012a. "Climate change and the military in China, Russia, and the United Kingdom, and the United States." *Bulletin of the Atomic Scientists*, vol. 68, no. 2:43 - 54. doi: 10.1177/0096340212438384.

Brzoska, Michael. 2012b. "Climate Change as a Driver of Security Policy." In *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*, edited by Jurgen Scheffran, Michael Brzoska, Hans Gunter Brauch, Peter Michael Link and Janpeter Schilling. Berlin: Springer.

Bulkeley, Harriet, and Peter Newell. 2010. *Governing Climate Change*. Edited by Thomas G. Weiss, *Global Institutions Series*. London: Routledge.

Busby, Joshua W. 2007. *Climate Change and National Security: An Agenda for Action*. Council on Foreign Relations Special Report: 32. New York: Council on Foreign Relations Press.

Bush, George W. 2001. "Address before a Joint Session of the Congress on Administration Goals " In *Compilation of Presidential Documents*, 5 March 2001, vol. 37, no. 9, pp. 351 - 357. Washington, DC: US Government Printing Office. Accessed on 12 June 2013, http://www.gpo.gov/fdsys/granule/WCPD-2001-03-05/WCPD-2001-03-05-Pg351-2/content-detail.html.

Bush, George W. 2002a. "Address before a Joint Session of the Congress on the State of the Union." In *Compilation of Presidential Documents*, 4 February 2002, vol. 38, no. 5 pp. 133 - 139. Washington, DC: US Government Printing Office. Accessed on 14 July 2013, http://www.gpo.gov/fdsys/granule/WCPD-2002-02-04/WCPD-2002-02-04-Pg133-3/content-detail.html.

Bush, George W. 2002b. "Remarks announcing the Clear Skies and Global Climate Change Initiatives in Silver Spring, Maryland." In *Compilation of Presidential Documents*, 18 February 2002, vol. 38, no. 7, pp. 232 - 236. Washington, DC: US Government Printing Office. Accessed on 3 September 2013, http://www.gpo.gov/fdsys/granule/WCPD-2002-02-18/WCPD-2002-02-18-Pg232/content-detail.html.

Bush, George W. 2003. "Remarks On Energy Independence " In *Compilation of Presidential Documents*, 10 February 2003, vol. 39, no. 6, pp. 161 - 164. Washington, DC: US Government Printing Office. Accessed on 10 August 2013, http://www.gpo.gov/fdsys/granule/WCPD-2003-02-10/WCPD-2003-02-10-Pg161/content-detail.html.

Bush, George W. 2005. "Address before a Joint Session of the Congress on the State of the Union." In *Public Papers of the Presidents of the United States: George W. Bush* 2 February 2005, vol. (Book) I, pp. 113 - 121. Washington, DC: US Government Printing Office. Accessed on 4 August 2013, http://www.gpo.gov/fdsys/granule/PPP-2005-book1/PPP-2005-book1-doc-pg113/content-detail.html.

Bush, George W. 2006. "Address before a Joint Session of the Congress on the State of the Union." In *Public Papers of the Presidents of the United States: George W. Bush* 31 January 2006, vol. (Book) I, pp. 146 - 154. Washington, DC: US Government Printing Office. Accessed on 17 August 2013, http://www.gpo.gov/fdsys/granule/PPP-2006-book1/PPP-2006-book1-doc-pg146-2/content-detail.html.

Bush, George W. 2007a. "Address before a Joint Session of the Congress on the State of the Union." In *Compilation of Presidential Documents*, 29 January 2007, vol. 43, no. 4, pp. 57 - 64. Washington, DC: US Government Printing Office. Accessed on 12 September 2013, http://www.gpo.gov/fdsys/granule/WCPD-2007-01-29/WCPD-2007-01-29-Pg57/content-detail.html.

Bush, George W. 2007b. "The President's News Conference." In *Compilation of Presidential Documents*, 9 April 2007, vol. 43, no. 14, pp. 409 - 417. Washington, DC: US Government Printing Office. Accessed on 21 September 2013, http://www.gpo.gov/fdsys/granule/WCPD-2007-04-09/WCPD-2007-04-09-Pg409-2/content-detail.html.

Bush, George W. 2007c. "The President's News Conference." In *Public Papers of the Presidents of the United States: George W. Bush* 20 December 2007, vol. (Book) II, pp. 1573 - 1585. Washington, DC: US Government Printing Office. Accessed on 10 August 2013, http://www.gpo.gov/fdsys/granule/PPP-2007-book2/PPP-2007-book2-doc-pg1573-2/content-detail.html.

Bush, George W. 2007d. "Remarks during a meeting on Energy Security and Climate Change." In *Compilation of Presidential Documents* 1 Ocober 2007, vol. 43, no. 39, pp. 1261 - 1265. Washington, DC: US Government Printing Office. Accessed on 8 October 2013, http://www.gpo.gov/fdsys/granule/WCPD-2007-10-01/WCPD-2007-10-01-Pg1261/content-detail.html.

Bush, George W. 2007e. "Remarks on Energy in Athens, Alabama." In *Compilation of Presidential Documents* 25 June 2007, vol. 43, no. 25, pp. 837 - 842. Washington, DC: US Government Printing Office Accessed on 23 August 2013, http://www.gpo.gov/fdsys/granule/WCPD-2007-06-25/WCPD-2007-06-25-Pg837/content-detail.html.

Bush, George W. 2008a. "Address before a Joint Session of the Congress on the State of the Union." In *Public Papers of the Presidents of the United States: George W. Bush*, 28 January 2008, vol. (Book) I, pp. 116 - 125. Washington, DC: US Government Printing Office. Accessed on 12 August 2013, http://www.gpo.gov/fdsys/granule/PPP-2008-book1/PPP-2008-book1-doc-pg116/content-detail.html.

Bush, George W. 2008b. "The President's News Conference." In *Compilation of Presidential Documents* 7 July 2008, vol. 44, no. 26, pp. 939 - 943. Washington, DC: US Government Printing Office. Accessed on 12 August 2013, http://www.gpo.gov/fdsys/granule/WCPD-2008-07-07/WCPD-2008-07-07-Pg939/content-detail.html.

Bush, George W. 2008c. "Remarks at the Washington International Renewable Energy Conference." In *Compilation of Presidential Documents* 10 March 2008, vol. 44, no. 9, pp. 324 - 330. Washington, DC: US Government Printing Office. Accessed on 2 October 2013, http://www.gpo.gov/fdsys/granule/WCPD-2008-03-10/WCPD-2008-03-10-Pg324-2/content-detail.html.

Bush, George W. 2008d. "Remarks on Energy and Climate Change." In *Compilation of Presidential Documents* 21 April 2008, vol. 44, no. 15, pp. 524 - 527. Washington, DC: US Government Printing Office. Accessed on 12 September 2013, http://www.gpo.gov/fdsys/granule/WCPD-2008-04-21/WCPD-2008-04-21-Pg524/content-detail.html.

Bush, George W. 2009. "Directive on Arctic Region Policy." In *Administration of George W. Bush*, 12 January 2009, pp. 47 - 54. Washington, DC: US Government Printing Office. Accessed on 5 September 2013, http://www.gpo.gov/fdsys/pkg/WCPD-2009-01-19/pdf/WCPD-2009-01-19-Pg47-2.pdf.

Buzan, Barry. 1991. *People, states and fear: an agenda for international security studies in the post-Cold War era*. London: Harvester Wheatsheaf.

Buzan, Barry, and Lene Hansen. 2009. *The Evolution of International Security Studies*. Cambridge: Cambridge University Press.

Buzan, Barry, Ole Wæver, and Jaap de-Wilde. 1998. *Security: A New Framework for Analysis*. Boulder: Lynne Rienner Publishers.

CAHA. 2010. "Climate change is a health issue." Published online: Climate and Health Alliance. Accessed on 10 March 2015, http://caha.org.au/wp-content/uploads/2011/03/CAHA-Briefing-Paper-1_Climate-change-is-a-health-issue1.pdf.

Campbell, Kurt M., Jay Gulledge, J.R. McNeill, John Podesta, Peter Ogden, Leon Fuerth, R. James Woolsey, Alexander T.J. Lennon, Julianne Smith, Richard Weitz, and Derek Mix. 2007. *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change*. Washington, DC: Center for a New American Century.

Caney, Simon. 2010. "Cosmopolitan Justice, Responsibility, and Global Climate Change." In *Climate Ethics: Essential Readings*, edited by Stephen M. Gardiner, Simon Caney, Dale Jamieson and Henry Shue. Oxford: Oxford University Press.

Carmen, Herbert E., Christine Parthemore, and Will Rogers. 2010. *Broadening Horizons: Climate Change and the U.S. Armed Forces*. Washington, DC: Center for a New American Century. Accessed on 15 May 2013, https://www.cnas.org/files/documents/publications/CNAS%20Publication_Climate%20Change%20and%20the%20US%20Armed%20Forces_April%2020.pdf.

Carr, Edward Hallett. 1946. *The Twenty Years' Crisis 1919 - 1939 An Introduction to the Study of International Relations*. Second ed. London: Macmmillan & Co. Ltd.

Chatterjee, Shibashis. 2003. "Neo-realism, Neo-liberalism and Security." *International Studies*, vol. 40, no. 2:125 - 144. doi: 10.1177/002088170304000202.

Chaturvedi, Sanjay, and Timothy Doyle. 2010. "Geopolitics of Climate Change and Australia's 'Re-engagement' with Asia: Discourses of Fear and Cartographic Anxieties." *Australian Journal of Political Science*, vol. 45, no. 1:95 - 115. doi: 10.1080/10361140903517734.

Christoff, Peter, and Robyn Eckersley. 2014. "No island is an island: Security in a Four Degree World." In *Four Degrees of Global Warming: Australia in a hot world*, edited by Peter Christoff, pp. 190 - 204. London: Routledge.

Chubb, Philip. 2014a. "The day the Rudd Government lost its way on climate change." *The Age*, Fairfax Media, 9 May 2014. Accessed on 26 May 2014, http://www.theage.com.au/insight/the-day-the-rudd-government-lost-its-way-on-climate-change-20140509-zr7fm.html.

Chubb, Philip. 2014b. *Power Failure: The Inside Story of Climate Politics Under Rudd and Gillard*. Melbourne: Black Inc. Agenda.

CIA. 2009. "CIA Opens Center on Climate Change and National Security." Online: CIA. Accessed on 15 February 2016, https://www.cia.gov/news-information/press-releases-statements/center-on-climate-change-and-national-security.html.

A Bill to address security risks posed by global climate change, and for other purposes. Global Climate Change Security Oversight Act (110th Congress, First session, H.R. 1961,

(Bill was not enacted). Accessed on 3 March 2013, http://www.gpo.gov/fdsys/pkg/BILLS-110hr1961ih/pdf/BILLS-110hr1961ih.pdf.

CNA. 2007. *National Security and The Threat of Climate Change*. Virginia: The CNA Corporation. Accessed on 12 April 2013, https://www.cna.org/cna_files/pdf/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf.

Cohen, Eliot A. 2002. *Supreme Command: Soldiers, Statesmen, and Leardership in Wartime*. New York: Simon & Schuster.

Cole, Steve. 2010. "Climate Change Implications for the Royal Australian Navy." Climate and Energy Symposium 2010: Proceedings on Climate and Energy, Imperatives for Future Naval Forces, Baltimore, 23 & 24 March 2010. Accessed on 18 October 2012, http://www.jhuapl.edu/ClimateAndEnergy/Presentations/2010/RT5_Cole.pdf

Commission, Palme. 1982. *Common Security: A blueprint for survival by the Independent Commission on disarmament and security issues*. Edited by Olof Palme. New York: Simon and Schuster.

Commonwealth Bank. 2008. *Commonwealth Bank of Australia Environment Policy*. Published online: Commonwealth Bank. Accessed on 12 Ocober 2015, https://www.commbank.com.au/about-us/download-printed-forms/EnvironmentalPolicy_0808.pdf.

Commonwealth of Australia. 2004. *Securing Australia's Energy Future*. Department of the Prime Minister and Cabinet. Canberra: Commonwealth of Australia. Accessed on 15 March 2011, http://www.efa.com.au/Library/cthEnergyWhitePaper.pdf.

Commonwealth of Australia. 2006. "Supplementary Budget Estimates." In *Standing Committee on Foreign Affairs, Defence and Trade Official Committee Hansard*, 1 November 2006. Canberra: Commonwealth of Australia. Accessed on 19 March 2012, http://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/fadtctte/estimates/sup0607/index.

Commonwealth of Australia. 2007a. "Budget Estimates." In *Standing Committee on Foreign Affairs, Defence and Trade Hansard*, 31 May 2007. Canberra: Commonwealth of Australia. Accessed on 13 February 2011, http://www.aph.gov.au/~/media/Estimates/Live/commttee/S10269.ashx.

Commonwealth of Australia. 2007b. *National Climate Change Adaptation Framework*. Plan of Collaborative Action on Climate Change: Canberra: Commonwealth of Australia. Accessed on 2 October 2012, http://www.environment.gov.au/system/files/resources/eaaf0350-9781-4006-957c-a5801fadc466/files/nccaf.pdf.

Commonwealth of Australia. 2008a. "Budget Estimates." In *Standing Committee on Foreign Affairs, Defence and Trade Official Committee Hansard*, 4 June 2008. Canberra: Commonwealth of Australia. Accessed on 12 June 2012, http://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/fadtctte/estimates/bud0809/index.

Commonwealth of Australia. 2008b. *Energy Use in the Australian Government's Operations 2006 - 2007*. Water Department of the Environment, Heritage and the Arts. Canberra: Department of the Environment, Water, Heritage and the Arts. Accessed on 4 June 2011, http://industry.gov.au/Energy/EnergyEfficiency/Non-residentialBuildings/GovernmentBuildings/Documents/report-2006.pdf.

Commonwealth of Australia. 2009a. *Climate Change Risks to Australia's Coast: A First Pass National Assessment*. Department of Climate Change. Canberra: Commonwealth of Australia. Accessed on 4 July 2012, https://www.environment.gov.au/system/files/resources/fa553e97-2ead-47bb-ac80-c12adffea944/files/cc-risks-full-report.pdf.

Commonwealth of Australia. 2009b. "Estimates - Additional Estimates." In *Standing Committee on Foreign Affairs, Defence and Trade Hansard*, 25 February 2009. Canberra: Commonwealth of Australia. Accessed on 12 May 2011, http://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/fadtctte/estimates/add0809/index.

Commonwealth of Australia. 2010. *Adapting to Climate Change in Australia An Australian Government Position Paper*. Department of Climate Change. Canberra: Commonwealth of Australia. Accessed on 5 October 2012, http://www.environment.gov.au/system/files/resources/93e900d7-3307-41c8-88e1-e0aa314c4cb3/files/adapt-climate-change-position-paper.pdf.

Commonwealth of Australia. 2011. *Climate Change Risks to Coastal Buildings and Infrastructure: A supplement to the First-Pass National Assessment*. Department of Climate Change and Energy Efficiency. Canberra: Commonwealth of Australia. Accessed on 12 July 2012, https://www.environment.gov.au/system/files/resources/0f56e5e6-e25e-4183-bbef-ca61e56777ef/files/risks-coastal-buildings.pdf.

Commonwealth of Australia. 2012a. "Senate Budget Estimates Questions On Notice - Committees." In *Senate Standing Committee on Foreign Affairs, Defence and Trade Hansard*, 28 & 29 May 2012. Canberra: Commonwealth of Australia. Accessed on 17 July 2013, http://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/fadtctte/estimates/bud1213/def/Department-of-Defence/defenceqonsindex.

Commonwealth of Australia. 2012b. "Senate Supplementary Budget Estimates Hearing." In *Senate Standing Committee on Foreign Affairs, Defence and Trade Hansard*, 17 October 2012. Canberra: Commonwealth of Australia.

Commonwealth of Australia. 2013a. *Energy Use in the Australian Government's Operations 2010 - 11*. Energy and Tourism Department of Resources. Canberra: Commonwealth of Australia. Accessed on 12 March 2012, http://industry.gov.au/Energy/EnergyEfficiency/Non-residentialBuildings/GovernmentBuildings/Documents/report-2011.pdf.

Commonwealth of Australia. 2013b. *Strong and Secure: A Strategy for Australia's National Security* Canberra: Commonwealth of Australia. Accessed on 13 October 2013, http://www.dpmc.gov.au/national_security/docs/national_security_strategy.pdf.

Commonwealth of Australia. 2015. "Supplementary Budget Estimates 2015 - 2016." In *Foreign Affairs, Defence and Trade Legislation Committee Hansard*. Canberra: Commonwealth of Australia. Accessed on 2 November 2015, http://www.aph.gov.au/Parliamentary_Business/Senate_Estimates/fadtctte/estimates/sup1516/index.

Corn, David. 2006. "Gore Warms Up." *The Nation*, Katrina vanden Heuvel, 25 May 2006. Accessed on 5 June 2014, http://www.thenation.com/article/gore-warms/.

Corry, Olaf. 2011. "Securitisation and 'Riskification': Second-order Security and the Politics of Climate Change." *Millenium: Journal of International Studies*, vol. 40, no. 2:235 - 258. doi: DOI: 10.1177/0305829811419444.

Cotton, William R., and Roger A. Peilke. 2007. *Human Impacts on Weather*. Fort Collins: Cambridge University Press.

Council of the European Union. 2008. *Climate Change and International Security: Paper from the High Representative and the European Commission to the European Council*. Brussels: Council of the European Union. Accessed on 12 March 2012, http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/reports/99387.pdf.

Dabelko, Geoffrey. 1999. "The Environmental Factor." *Wilson Quarterly*, vol. 23, no. 4:14 - 19.

Daddow, Oliver. 2009. *International Relations Theory*. London: Sage Publications.

Dalby, Simon. 1992. "Security, modernity, ecology: the dilemmas of post-Cold War security discourse." *Alternatives*, vol. 17, no.:95 - 134.

Dalby, Simon. 2009. *Security and Environmental Change*. Cambridge: Polity Press.

Dalby, Simon, Hans Günter Brauch, and Úrsula Oswald Spring. 2009. "Environmental Security Concepts Revisited During the First Three Phases (1983-2006)." In *Facing Global Environmental Change Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Béchir Chourou and Heinz Krummenacher, vol. 4, pp. 781 - 790. Berlin: Springer.

Dalby, Simon, and Shannon O'Lear. 2016. "Towards Ecological Geopolitics: Climate change reframed." In *Reframing Climate Change: Constructing Ecological Geopolitics*, edited by Shannon O'Lear and Simon Dalby, pp. 203 - 216. London: Routledge.

Davis, Tom, Harold Rogers, Christopher Shays, Henry Bonilla, Steve Buyer, Sue Myrick, Mac Thornberry, Kay Granger, Charles W. "Chip" Pickering, Bill Shuster, and Jeff Miller. 2006. *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*. US House of Representatives. Washington, DC: US Government Printing Office. Accessed on 13 March 2013, https://web.archive.org/web/20090326065222/http://www.gpoaccess.gov/katrinareport/fullreport.pdf.

Defence, Department of. 2005a. *Australia's National Security: A Defence Update 2005*. Canberra: Commonwealth of Australia.

Defence, Department of. 2005b. *Defence Energy Management Strategy*. Canberra: Department of Defence. Accessed on 3 March 2012, http://www.defence.gov.au/ips/parliament/qons/41st/slc/0506_budget_may05/responses/Q09_ems.pdf.

Defence, Department of. 2007a. *Defence Energy Policy*. Defence Support Group. Canberra: Commonwealth of Australia.

Defence, Department of. 2007b. *Joint Operations for the 21st Century*. Canberra: Department of Defence. Accessed on 11 September 2011, http://www.defence.gov.au/publications/docs/FJOC.pdf.

Defence, Department of. 2008a. *Combat Climate Change*. Canberra: Department of Defence. Accessed on 7 July 2011, http://www.defence.gov.au/environment/climate_change/.

Defence, Department of. 2008b. *Looking over the Horizon: Australians Consider Defence*. Canberra: Department of Defence. Accessed on 7 August 2011, http://www.defence.gov.au/whitepaper/2009/docs/Looking_Over_The_Horizon.pdf.

Defence, Department of. 2009a. *Defence Annual Report 2008 - 09*. Department of Defence. Canberra: Department of Defence. Accessed on 10 July 2012, http://www.defence.gov.au/AnnualReports/08-09/.

Defence, Department of. 2009b. *Defending Australia in the Asia Pacific Century: Force 2030*. Canberra: Commonwealth of Australia. Accessed on 15 March 2010, http://www.defence.gov.au/CDG/Documents/defence_white_paper_2009.pdf.

Defence, Department of. 2010a. *Defence Annual Report 2009 - 10*. Department of Defence. Canberra: Department of Defence. Accessed on 1 March 2011, http://www.defence.gov.au/AnnualReports/09-10/.

Defence, Department of. 2010b. *Defence Environmental Strategic Plan 2010 - 2014*. Canberra: Defence Support Group for Department of Defence. Accessed on 16 June 2011, http://www.defence.gov.au/environment/strat_plan.pdf.

Defence, Department of. 2010c. *The Strategy Framework 2010*. Canberra: Department of Defence. Accessed on 14 March 2011, http://www.defence.gov.au/publications/docs/TheStrategyFramework2010.pdf.

Defence, Department of. 2011. *Global Change and Energy Sustainability Initiative*. Canberra: Defence Preparedness Branch for Department of Defence. Accessed on 10 August 2015, http://www.defence.gov.au/VCDF/JCC/DPREP/GCESI.asp.

Defence, Department of. 2012. "Answers to Questions on Notice - Committees." In *Senate Standing Committee on Foreign Affairs, Defence and Trade Senate Budget Estimates Hansard*, 29 May 2012. Canberra: Commonwealth of Australia. Accessed on 10 May 2013, http://www.aph.gov.au/~/media/Estimates/Live/fadt_ctte/estimates/bud_1213/def/Department-of-Defence/Defence_QONs.ashx.

Defence, Department of. 2013. *Defence White Paper*. Canberra: Commonwealth of Australia. Accessed on 10 January 2014, http://www.defence.gov.au/whitepaper/2013/docs/WP_2013_web.pdf.

Defence, Department of. 2014. *Defence Procurement Policy Manual*. Canberra: Department of Defence. Accessed on 5 June 2015, http://www.defence.gov.au/dmo/Multimedia/DPPM-9-5247.pdf. (Document now archived, in possession of author, for update see: http://www.defence.gov.au/casg/Multimedia/DPPM_September_2015-9-5247.pdf).

National Defense Authorization Act for Fiscal Year 2008. National Defense Authorization Act for Fiscal Year 2008 (110th US Congress, Public Law 110-181, 28 January 2008. Accessed on 21 September 2013, http://www.gpo.gov/fdsys/pkg/PLAW-110publ181/html/PLAW-110publ181.htm.

Defense Science Board Task Force. 2008. *Report of the Defense Science Board Task Force on DoD Energy Strategy: More Fight - Less Fuel*. Washington, DC: Department of Defense. Accessed on 12 March 2013, https://dap.dau.mil/policy/Documents/Policy/Final%20Report%20of%20the%20DSB%20Task%20Force%20on%20DoD%20Energy%20Strategy%20%20Tab%20B.pdf.

Dempsey, Martin. 2011. "General Dempsey at the Military Reporters and Editors Conference " In *Joint Chiefs of Staff Speeches*, 18 November 2008, vol. 2013. Arlington: Department of Defense. Accessed on 12 July 2012, http://www.jcs.mil/Media/Speeches/tabid/3890/Article/571837/gen-dempseys-remarks-and-qa-at-at-the-military-reporters-and-editors-conference.aspx.

Dempsey, Martin. 2012. "Gen. Dempsey's Remarks at the Ambassador S. Davis Phillips Family International Lecture Series " In *Joint Chiefs of Staff Speeches*, 12 January 2012. Duke University: Department of Defense. Accessed on 12 July 2013, http://www.jcs.mil/Media/Speeches/tabid/3890/Article/571848/gen-dempseys-remarks-and-qa-at-the-ambassador-s-davis-phillips-family-internati.aspx.

Department of Industry. 2011. *Low Emission Technology Demonstration Fund (LETDF): Funded Projects*. Canberra: Department of Industry for Commonwealth of Australia. Accessed on 13 April 2012, http://www.innovation.gov.au/Energy/Documents/energy-programs/REVISED_LETDF_Funded_projects_30_May_2011.pdf.

Detraz, Nicole, and Michele M. Betsill. 2009. "ClimateChange and Environmental Security: For Whom the Discourse Shifts." *International Studies Perspectives*, vol. 10, no. 3:303 - 320. doi: 10.1111/j.1528-3585.2009.00378.x.

Deudney, Daniel. 1990. "The Case Against Linking Environmental Degradation and National Security." *Millenium: Journal of International Studies*, vol. 19, no. 3:461 - 476. doi: 10.1177/03058298900190031001.

Diez, Thomas, and Julia Grauvogel. 2011. "The Securitisation of Climate Change - Actors, Processes, Consequences." Tübingen University of Tübingen Accessed on 8 February 2016, https://www.uni-tuebingen.de/index.php?eID=tx_nawsecuredl&u=0&g=0&t=1454991985&hash=1e99267831c1bf62125a135698a661a31803d292&file=fileadmin/Uni_Tuebingen/Fakultaeten/SozialVerhalten/Institut_fuer_Politikwissenschaft/Dokumente/diez/Prokejte_Diez_ClimaSec/ClimaSec_Detailed_Project_Description.pdf.

DiPeso, Jim. 2010. "Can DOD lead the way to a better energy future?" *Environmental Quality Management*, vol. 20, no. 2:95 - 100. doi: 10.1002/tqem.20283.

Diringer, E. 2011. "Climate policy: Letting go of Kyoto." *Nature*, vol. 479, no. 7373:291 - 292. doi: 10.1038/479291a.

DoD, US. 2012. *Department of Defense Strategic Sustainability Performance Plan FY-2012*. Washington, DC: Department of Defense. Accessed on 5 March 2013, http://www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY14-FINAL-w_CCAR.pdf. (FY-2012 SSPP document archived. Document in possession of author. See FY-2014 SSPP weblink herein for nearest version).

Drezner, Daniel W. 2008. "The Realist Tradition in American Public Opinion." *Perspectives on Politics*, vol. 6, no. 1:51 - 70. doi: 10.1017/S1537592708080067.

DSTO. 2008. "Bubbles to bust a bio-fouling problem." *Australian Defence Science*, vol. 16, no. 4:4 - 5.

Dunne, Tim, and Brian Schmidt. 2005. "Realism." In *The Globalization of World Politics: An Introduction to International Relations*, edited by John Baylis and Steve Smith, Third, pp. 161 - 183. New York: Oxford University Press.

Dupont, Alan, and Graeme Pearman. 2006. *Heating up the Planet: Climate Change and Security*. Lowy Institute Paper 12. Sydney: Lowy Institute. Accessed on 10 March 2010, http://www.lowyinstitute.org/publications/heating-planet-climate-change-and-security.

Dyer, Gwynne. 2008. *Climate Wars: The fight for survival as the world overheats*. Melbourne: Scribe Publications.

Eckersley, Robyn. 1992. *Environmentalism and Political Theory: Toward an Ecocentric Approach*. Edited by Lester Milbrath, *Environmental Public Policy*. Albany: State University of New York Press.

Edwards, Michael J. 1999. "Security Implications of a Worst-case Scenario of Climate Change in the South-west Pacific." *Australian Geographer*, vol. 30, no. 3:311 - 330.

EEA. 2013. "Atmospheric greenhouse gas concentrations (CSI 013) - Assessment published Jan 2013." Copenhagen: EU Environmental Agency. Accessed on 28 January 2013, http://www.eea.europa.eu/data-and-maps/indicators/atmospheric-greenhouse-gas-concentrations-2/assessment-1.

EPA. 2008. "Military Leadership in Reducing Dependence on Fossil Fuels." Military Climate Leadership, Paris. Accessed on 14 February 2013, http://www.envirosecurity.org/CCSC/Andersen.pdf

Erbach, Gregor. 2015. *Climate policies in the EU and USA: Different Approaches, convergent outcomes?* European Parliament Breifing: PE 571.347. Brussels: European Parliament.
http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/571347/EPRS_BRI(2015)571347_EN.pdf.

ESSP. 2012. "Global Carbon Budget 2012." Earth System Science Partnership. Accessed on 10 February 2013, http://www.globalcarbonproject.org/carbonbudget/12/presentation.htm.

EU. 2003. *European Security Strategy: A Secure Europe in a Better World*. Brussels: European Union. Accessed on 23 September 2014, http://www.consilium.europa.eu/uedocs/cmsUpload/78367.pdf.

Evans, Ann. 2012. *Australian Survey of Social Attitudes, 2011*. The Australian Survey of Social Attitudes: Canberra: Australian Data Archive.

Evans, Michael. 2005. *The Tyranny of Dissonance: Australia's Strategic Culture and Way of War 1901 - 2005*. Land Warfare Studies Centre Study Paper Number 306: Canberra: Land Warfare Studies Centre.

Executive Order 13514. 2009. "Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance." In *Presidential Documents, Federal Register* 5 October 2009, vol. 74 no. 194, pp. 52117 - 52127. Washington, DC: US Government Printing Office Accessed on 10 October 2013, http://www.gpo.gov/fdsys/granule/FR-2009-10-08/E9-24518/content-detail.html.

Falk, Richard A. 1971. *This Endangered Planet: Prospects and Proposals for Human Survival*. New York: Random House.

Field, Chris. 2011. "Operation Queenslander: Ten Ideas for Australian Defence Force Support to Disaster Relief Operations." *Australian Army Journal For The Profession of Arms*, vol. 8, no. 3:121 - 140.

Fitzgibbon, Joel. 2008a. "Defence Supports Earth Hour 2008." In *Transcipts of the Minister for Defence*, 29 March 2008. Canberra: Department of Defence. Accessed on 12 June 2012, http://www.defence.gov.au/minister/70tpl.cfm?CurrentId=7537. (Site archived. Document in possession of author).

Fitzgibbon, Joel. 2008b. "Labor's Defence Reform Project - Meeting the Strategic Challenges of the 21st Century." In *Transcripts of the Minister for Defence*, 30 July 2008. Canberra: Commonwealth of Australia. Accessed on 7 April 2013, http://defence.gov.au/minister/72tpl.cfm?CurrentId=8020. (SIte archived. Document in possession of author).

Fitzgibbon, Joel. 2008c. "Speech by the Minister for Defence to the Brookings Institution, Washington DC." In *Transcripts of the Minister for Defence*, 15 July 2008. Canberra: Commonwealth of Australia. Accessed on 12 March 2013, http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22media%2Fpressrel%2F1R0R6%22.

Fitzgibbon, Joel. 2008d. "Speech by the Minister for Defence to the Shangri-La Conference Singapore, 31 May 2008, 'Making Defence Policy in Uncertain Times'." In *Transcripts of the Minister for Defence*, 31 May 2008. Canberra: Commonwealth of Australia. Accessed on 5 May 2012, http://www.defence.gov.au/minister/72tpl.cfm?CurrentId=7799. (Site archived. Document in possession of author).

Fitzgibbon, Joel. 2008e. "Speech to the National Resilience Institute (Lemhannas), Jakarta, Indonesia." In *Transcripts of the Minister for Defence*, 18 September 2008. Canberra: Department of Defence. Accessed on 16 April 2012,

http://www.defence.gov.au/minister/72tpl.cfm?CurrentId=8244. (Site archived. Document in possession of author).

Fitzgibbon, Joel. 2014. "Hunter Electorate." Federal Member for Hunter - Joel Fitzgibbon MP. Accessed on 20 Feb 2014, http://www.joelfitzgibbon.com/about.

Floyd, Rita. 2008. "Meeting the Challenges of Climate Change: The Environmental Security Debate and Its Significance for Climate Change." *The International Spectator: Italian Journal of International Affairs*, vol. 43, no. 3:51 - 65. doi: 10.1080/03932720802280602.

Floyd, Rita. 2010. *Security and the Environment: Securitisation Theory and US Environmental Security Policy*. Cambridge: Cambridge University Press.

Floyd, Rita. 2011. "Can securitization theory by used in normative analysis? Towards a just securitization theory." *Security Dialogue*, vol. 42, no. 4-5:427 - 439. doi: 10.1177/0967010611418712.

Floyd, Rita. 2012. "Climate Change, Environmental Security Studies and the Morality of Climate Security." Online: E-IR. Accessed on 9 February 2016, http://www.e-ir.info/2012/01/20/climate-change-environmental-security-studies-and-the-morality-of-climate-security/.

Foucault, Michel. 1982. "Afterword: The Subject and Power." In *Michel Foucault: Beyond structuralism and hermeneutics*, edited by Hubert L Dreyfus and Paul Rabinow, pp. 208-225. Chicago: University of Chicago Press.

G8+5 National Academies. 2009. "G8+5 Academies' joint statement: Climate change and the transformation of energy technologies for a low carbon future." Accessed on 24 Sep 2014, http://www.nationalacademies.org/includes/G8+5energy-climate09.pdf.

Gallie, W. B. 1956. "Essentially Contested Concepts." Proceedings of the Aristotelian Society, London. Accessed on,

Gardiner, Stephen M. 2010a. *Climate Ethics: Essential Readings*. Oxford: Oxford University Press.

Gardiner, Stephen M. 2010b. "Ethics and Global Climate Change." In *Climate Ethics: Essential Readings*, edited by Stephen M. Gardiner, Simon Caney, Dale Jamieson and Henry Shue. Oxford: Oxford University Press.

Garnaut, Ross. 2008. *The Garnaut Climate Change Review: Final Report*. Melbourne: Cambridge University Press.

Gates, Robert M. 2014. *Duty: Memoirs of a Secretary at War*. New York: Alfred A. Knopf.

Gibbs, Meredith, and Tony Hill. 2011. *Coastal Climate Change Risk: Legal and Policy Responses in Australia*. Department of Climate Change and Energy Efficiency. Canberra: Commonwealth of Australia. Accessed on 12 March 2012, https://www.environment.gov.au/climate-change/adaptation/publications/coastal-climate-change-risk.

Gillard, Julia E. 2011a. "Address to the Carbon Expo Australasia 2011, Melbourne." In *Transcripts of the Prime Ministers of Australia*, 09 November 2011. Canberra: Commonwealth of Australia. Accessed on 12 March 2012, http://pmtranscripts.dpmc.gov.au/release/transcript-18253.

Gillard, Julia E. 2011b. "A great clean energy future, a great reform agenda: Address to the National Press Club, Canberra." In *Transcripts from the Prime Ministers of Australia*, 14 July 2011. Canberra: Commonwealth of Australia. Accessed on 12 March 2012, http://pmtranscripts.dpmc.gov.au/release/transcript-18004.

Gillespie, Ken J. 2008. "Chief of Army Speech." In *Address to Australian Command and Staff College*. Canberra. (Document in possession of author).

Gillespie, Ken J. 2009. "The Adaptive Army Initiative." *Australian Army Journal For The Profession of Arms*, vol. 6, no. 3:7 - 19.

Gilpin, Robert. 2005. "War is Too Important to Be Left to Ideological Amateurs." *International Relations*, vol. 19, no. 1:5 - 18. doi: 10.1177/0047117805050059.

Gleick, Peter H. 1989a. "Climate change in international politics: Problems facing developing countries." *Ambio*, vol. 18, no. 6:333 - 339.

Gleick, Peter H. 1989b. "The implication of global climate changes for international security." *Climate Change*, vol. 15, no. 1:302 - 325. doi: 10.1007/BF00138857.

Glennon, Michael J. 2003. "Why the Security Council Failed." *Foreign Affairs*, vol. 82, no. 3:16-34.

Greenert, Jonathon W. 2011. "Adapting to Climate and Energy Challenges: Options for U.S. Maritime Forces." Adapting to Climate and Energy Challenges Symposium, Laurel, 29 & 30 March 2011. Accessed on 15 June 2013, http://www.jhuapl.edu/ClimateAndEnergy/Book2011/2011CEBook-LR.pdf

Grimmer, Justin, and Brandon M. Stewart. 2013. "Text as Data: The Promise and Pitfalls of Automatic Content Analysis Methods for Political Texts." *Political Anlaysis*, vol. 21, no. 3:267 - 297. doi: doi: 10.1093/pan/mps028.

Gurran, Nicole, Elisabeth Hamin, and Barbara Norman. 2008. *Planning for climate change: Leading Practice Principles and Models for Sea Change Communities in Coastal Australia*. National Sea Change Taskforce: Sydney: The University of Sydney. Accessed on 19 April 2012, http://stokes2013.files.wordpress.com/2014/10/planningforclimatechange.pdf.

Guzzini, Stefano. 2004. "The Enduring Dilemmas of Realism in International Relations " *European Journal of International Relations*, vol. 10, no. 4:533 - 568. doi: 10.1177/1354066104047848.

Habib, Benjamin. 2011. "Climate Change and International Relations Theory: Northeast Asia as a Case Study." World International Studies Committee Third Global International Studies Conference, University of Porto (Portugal), 17 - 20 August.

Hajer, Maarten A. 1995. *The Politics of Environmnetal Discourse: Ecological Modernization and the Policy Process*. Oxford: Clarendon Press.

Halberstam, David. 1972. *The Best and Brightest*. New York: Random House.

Halden, Peter. 2007. *The Geopolitics of Climate Change*. Stockholm: Swedish Defence Research Agency.

Hannam, Peter. 2015. "Paris 2015: Carbon promises lock in 2.7 degrees of warming, UN says." *The Sydney Morning Herald*, Fairfax Media, 30 October 2015. Accessed on 2 November 2015, http://www.smh.com.au/environment/un-climate-conference/paris-2015-carbon-promises-lock-in-27-degrees-of-warming-un-says-20151030-gkmuw5.html.

Hansen, J., D. Johnson, A. Lacis, S. Lebedeff, P. Lee, D. Rind, and G. Russell. 1981. "Climate Impact of Increasing Atmospheric Carbon Dioxode." *Science*, vol. 213, no. 4511:958-966.

Hansen, James, M. Sato, P. Kharecha, and K. von Scuckmann. 2011. "Earth's energy imbalance and implications." *Atmospheric Chemistry and Physics*, no. 11:13421 - 13449. doi: 10.5194.

Hansen, Lene. 2000. "The Little Mermaid's Silent Security Dilemma and the Absence of Gender in the Copenhagen School." *Journal of International Studies*, vol. 29, no. 2:285-306.

Hardt, Judith Nora. 2012. "Critical Deconstruction of Environmental Security and Human Security Concepts in the Anthropocene." In *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*, edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link and Janpeter Schilling, pp. 207 - 222. Berlin: Springer.

Hartcher, Peter. 2014. "Tony Abbott must shift with the tide on climate change." *The Age*, Fairfax Media, 9 Dec 2014, http://www.theage.com.au/federal-politics/political-opinion/tony-abbott-must-shift-with-the-tide-on-climate-change-20141208-122ie7.html.

Hartley, Jean. 2004. "Case Study Research." In *Essential Guide to Qualitative Methods in Organisational Research*, edited by Catherine Cassell and Gillian Symon, pp. 323 - 333. London: SAGE Publications.

Hartmann, Betsy. 2009. "Lines in the Shifting Sand: The Strategic Politics of Climate Change, Human Security and National Defense." Rethinking Security in a Changing Climate, GECHS Synthesis Conference, Oslo, 22 - 24 June 2009. Accessed on 27 March 2013, http://www.betsyhartmann.com/pdf/Lines%20in%20the%20Shifting%20Sand%20by%20Betsy%20Hartmann.pdf

Hartmann, Betsy. 2010. "Rethinking Climate Refugees and Climate Conflict: Rhetoric, Reality and the Politics of Policy Discourse." *Journal of International Development*, vol. 22, no. 2:233-246. doi: 10.1002/jid.1676.

Hawke, Allan, and Ric Smith. 2012. *Australian Defence Force Posture Review*. Canberra: Commonwealth of Australia.

Hayes, Jarrod, and Janelle Knox-Hayes. 2014. "Security in Climate Change Discourse: Analysing the Divergence between US and EU Approaches to Policy." *Global Environmental Politics*, vol. 14, no. 2:82 - 101. doi: 10.1162/GLEP_a_00230.

HM Government. 2008. *The National Security Strategy of the United Kingdom: Security in an interndependent world*. London: UK Government. Accessed on 16 May 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228539/7291.pdf.

HM Government. 2010. *Foreign and Commonwealth Office Annual Report 2008–09: Fifth Report of Session 2009–10*. London: Foreign and Commonwealth Office. Accessed on 14 April 2013, http://www.publications.parliament.uk/pa/cm200910/cmselect/cmfaff/145/145.pdf.

Homer-Dixon, Thomas. 1996. "Strategies for Studying Causation in Complex Ecological-Political Systems." *The Journal of Environment and Development*, vol. 5, no. 2:132 - 148. doi: 10.1177/107049659600500202.

Homer-Dixon, Thomas, and Tom Deligiannis. 2009. "Environmental Scarcities and Civil Violence." In *Facing Global Environmental Change Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Günter Brauch, Úrsula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Béchir Chourou and Heinz Krummenacher, vol. 4, pp. 309 - 323. Berlin: Springer.

Homer-Dixon, Thomas F. 1991. "On the Threshold: Environmental Changes as Causes of Acute Conflict." *International Security*, vol. 16, no. 2:76 - 116. doi: 10.2307/2539061.

Homer-Dixon, Thomas F. 1994. "Environmental scarcities and violent conflict: Evidence from cases." *International Security*, vol. 19, no. 1:5 - 40. doi: 10.2307/2539147.

Homer-Dixon, Thomas F. 1999. *Environment, Scarcity and Violence*. Princeton: Princeton University Press.

Homer-Dixon, Thomas F. 2007. "Terror in the Weather Forecast." *New York Times*, Arthur Ochs Sulzberger Jr, 24 April 2007.

Houston, Angus. 2007. "The ADF of the Future." *Australian Defence Force Journal: Journal of the Profession of Arms*, no. 173.

Houston, Angus. 2010. "Future security prospects, future capability plans and how the ADF makes a contribution to a 'whole of government' approach to national security." In *Address to National Security Lecture Series*, 29 October 2010. Canberra: University of Canberra. Accessed on 15 June 2012, http://www.canberra.edu.au/public-lectures/national-security. (SIte archived. Document in possession of author).

Howard, John W. 2004. "Address to National Press Club Canberra, Securing Australia's Energy Future." In *Transcripts from the Prime Ministers of Australia*, 15 June 2004. Canberra: Department of the Prime Minister and Cabinet. Accessed on 13 March 2012, http://pandora.nla.gov.au/pan/10052/20040821-0000/www.pm.gov.au/news/speeches/speech912.html.

Howard, John W. 2006a. "Address at the Business Council of Australia Annual Dinner Sofitel Wentworth, Sydney." In *Transcripts from the Prime Ministers of Australia* 13 November 2006. Canberra: Department of Prime Minister and Cabinet. Accessed on 13 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-22579.

Howard, John W. 2006b. "Address at the Launch of the Asia-Pacific Partnership on Clean Development and Climate 'Partnership for Action 2006' CSIRO, Yarralumla." In *Transcripts from the Prime Ministers of Australia*, 1 November 2006. Department of Prime Minister and Cabinet. Accessed on 11 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-22552.

Howard, John W. 2006c. "Address at the Liberal Party of Australia (Queensland Division) Annual State Convention." In *Transcripts from the Prime Ministers of Australia*, 4 November 2006. Canberra: Department of the Prime Minister and Cabinet. Accessed on 13 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-22559.

Howard, John W. 2006d. "Address to the APEC CEO Summit National Convention Centre, Hanoi." In *Transcripts of the Prime Ministers of Australia*, 18 November 2006. Canberra: Department of Prime Minister and Cabinet. Accessed on 15 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-22590.

Howard, John W. 2006e. "Address to the Asia-Pacific Partnership on Clean Development and Climate Inaugural Ministerial Meeting Government House, Sydney." In *Transcripts from the Prime Ministers of Australia*, 12 January 2006. Canberra: Department of Prime Minister and Cabinet. Accessed on 8 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-22099.

Howard, John W. 2006f. "Address to the Australia/UK Leadership Forum Parliament House, Canberra." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 27 March 2006. Canberra: Department of the Prime Minister and Cabinet. Accessed on 10 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-22190.

Howard, John W. 2007a. "Address to the National Press Club Great Hall, Parliament House." In *Transcripts from the Prime Ministers of Australia*, 25 January 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 13 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15149.

Howard, John W. 2007b. "APEC Leaders' Sydney Declaration on Climate Change, Energy Security and Clean Development." In *Transcripts from the Prime Ministers of Australia*, 8 September 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 5 April 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15401.

Howard, John W. 2007c. "Climate Change Announcement." In *Transcripts from the Prime Ministers of Australia*, 17 July 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 12 April 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15296.

Howard, John W. 2007d. "Interview with Simon Beaumont, Radio 6PR, Perth." In *Transcripts from the Prime Ministers of Australia*, 19 February 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 19 April 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15212.

Howard, John W. 2007e. "Meeting of Major Economies of Energy Security and Climate Change." In *Transcripts from the Prime Ministers of Australia*, 4 August 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 29 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15377.

Howard, John W. 2007f. "National Plan for Water Security; Qantas; Australia-Japan relations." In *Transcripts from the Prime Ministers of Australia*, 5 February 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 3 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15193.

Howard, John W. 2007g. "Nuclear Power Station Plebiscites." In *Transcripts of the Prime Ministers of Australia*, 23 August 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 8 April 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15491.

Howard, John W. 2007h. "Weekly Radio Message - Climate Change." In *Transcripts from the Prime Ministers of Australia*, 16 July 2007. Canberra: Department of Prime Minister and Cabinet. Accessed on 18 April 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15292.

Howard, John W. 2013. "One Religion is Enough." London: The Global Warming Policy Foundation. Accessed on 7 Feb 2014, http://www.thegwpf.org/john-howard-religion/.

Hulme, Mike. 2008. "The conquering of climate: discourses of fear and their dissolution." *The Geographical Journal*, vol. 174, no. 1:5 - 16. doi: 10.1111/j.1475-4959.2008.00266.x.

Hulme, Mike. 2009. *Why we disagree about climate change: Understanding controversy, inaction and opportunity*. Cambridge: Cambridge Univesity Press.

Hurley, David J. 2011. "Chief of the Defence Force - Address to the Australian Strategic Policy Institute." In *Defence News and Media*, 18 August 2011. Canberra: Department of Defence. Accessed on 12 May 2013, http://news.defence.gov.au/2011/08/19/chief-of-the-defence-force-%E2%80%93-address-to-the-australian-strategic-policy-institute/.

Huysmans, Jef. 2004. "A Foucaultian view on spill-over: freedom and security in the EU." *Journal of International Relations and Development*, vol. 7, no.:294 - 318. doi: doi:10.1057/palgrave.jird.1800018.

Huysmans, Jef. 2006. *The Politics of Insecurity: Fear, Migration and Asylum in the EU*. London: Routledge.

ICAO. 2015. "Uniting Aviation on Climate Change." International Civil Aviation Organization. Accessed on 23 September 2015, http://www.icao.int/environmental-protection/Pages/act-global.aspx.

IEA. 2011. "Executive Summary." In *2011 World Energy Outlook*. Paris: International Energy Agency. Accessed on 10 September 2012, http://www.iea.org/publications/freepublications/publication/English.pdf.

IEA. 2012. *CO_2 Emissions From Fuel Combustion: Highlights*. Paris: International Energy Agency. Accessed on 10 October 2013, http://www.iea.org/publications/freepublications/publication/CO2emissionfromfuelcombustionHIGHLIGHTS.pdf.

IGBP. 2010. "Strategic Vision." International Geosphere-Biosphere Programme. Accessed on 2 February 2013,

http://www.igbp.net/download/18.2709bddb12c08a79de780001017/IGBPDraftvision27September.pdf.

Ikenberry, Gilford John. 2002. "America's Imperial Ambition." *Foreign Affairs*, vol. 81, no. 5:44 - 60.

Ikenberry, Gilford John, and Anne-Marie Slaughter. 2006. *Forging a World of Liberty Under Law: US National Security In the 21st Centruy* Princeton Project on National Security: Princeton: The Woodrow Wilson School of Public and International Affairs. Accessed on 10 May 2013, http://www.princeton.edu/~ppns/report/FinalReport.pdf.

Inhofe, James M. 2012a. "Inhofe Again Requests Sec. Mabus to disclose full cost of greening fleet demonstration ". Washington, DC: US Senate. Published online 2 August 2012, http://www.inhofe.senate.gov/newsroom/press-releases/inhofe-again-requests-sec-mabus-to-disclose-full-cost-of-green-fleet-demonstration.

Inhofe, James M. 2012b. "Inhofe: Jolly "Green Fleet" Throwing Dollars Out to Sea." Washington, DC: US Senate. Published online 19 July 2012, http://www.epw.senate.gov/public/index.cfm/2012/7/post-a145fe86-802a-23ad-4b07-45be3935642e.

Inhofe, James M. 2012c. "Press Release: Inhofe Questions Excessive Cost of 'Greening' Military (25 July)." Washington, DC: US Senate. Accessed on 8 October 2013, http://www.epw.senate.gov/public/index.cfm/press-releases-republican?ID=BFB1C8CE-802A-23AD-4849-5001DD46198D.

Insurance Council of Australia. 2008. *Improving Community Resilience to Extreme Weather Events*. Published online: Insurance Council of Australia. Accessed on 10 October 2015, http://www.insurancecouncil.com.au/assets/files/community%20resilience%20policy%20201500408.pdf.

International Federation of Red Cross. 2015. "Aggravating factors: climate change ". Published online: International Federation of Red Cross and Red Crescent Societies. Accessed on 1 October 2015, http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/aggravating-factors/climate-change/.

IPCC. 2007. "Summary for Policymakers." In *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller. Cambridge: Cambridge University Press.

IPCC. 2015. "Climate Change 2014 Synthesis Report." In *Climate Change 2014: Synthesis Report. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by Core Writing Team, Rajendra K. Pachauri and Leo Meyer. Geneva: Intergovernmental Panel on Climate Change. Accessed on 14 March 2015, http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf.

Jamieson, Dale. 2010. "Ethics, Public Policy, and Global Warming." In *Climate Ethics: Essential Readings*, edited by Stephen M. Gardiner, Simon Caney, Dale Jamieson and Henry Shue. Oxford: Oxford University Press.

Kaplan, Robert D. 1994. "The Coming Anarchy." *World Policy Journal*, vol. 17, no. 2:95-96.

Kelly, Mike. 2008. "Regional Security and Middle Power Diplomacy." In *John Gee Memorial Lecture* 29 August 2008. Canberra: Department of Defence. Accessed on 3 March 2012, http://www.lowyinstitute.org/files/pubfiles/Kelly,_Regional_security_and_middle_power_diplomacy.pdf.

Kelly, Mike. 2012. "PNG: Securing a Prosperous Future, Domestic and Regional Security (Prosperous Future Conference, Deakin University Geelong)." In *Transcripts Parliamentary Secretary for Defence*, 13 April 2012. Canberra: Department of Defence. Accessed on 15 April 2013, http://www.minister.defence.gov.au/2012/04/13/6918/.

Keohane, Richard O. 1986. "Realism, neorealism and the study of world politics." In *Neorealism and its Critics*, edited by Richard O. Keohane, pp. 1- 26. New York: Columbia University Press.

Keohane, Robert O., and David G. Victor. 2011. "The Regime Complex for Climate Change." *Perspectives on Politics*, vol. 9, no. 1:7 - 23. doi: 10.1017/S1537592710004068.

Ki-Moon, Ban. 2008. "We have moved climate change up to top of the agenda." In *Secretary-General Statements and Messages, Press Release*, vol. SGM/SM/11408. New York: United Nations. Accessed on 18 April 2012, http://www.un.org/News/Press/docs/2008/sgsm11408.doc.htm.

Ki-Moon, Ban. 2012. "Secretary-General's video message to Planet Under Pressure Conference." In *Statement by the Secretary-General*, 29 March 2012. New York: United Nations. Accessed on 16 March 2013, http://www.un.org/sg/statements/index.asp?nid=5960.

Klare, Michael T. 2007. "Global Warming Battlefields: How Climate Change Threatens Security." *Current History*, vol. 106, no. 703:355 - 361.

Klötzli, Stefan. 1994. "The Water and Soil Crisis in Central Asia: A Source for Future Conflicts?" In *Environment and Conflicts Project ENCOP Occasional Papers*, edited by Günter Bächler and Kurt R. Spillmann, vol. 11. no. 1. Zurich: Center for Security Studies. Accessed on 24 June 2014, http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?lang=en&id=244.

Knieling, Jörg, and Walter Leal Filho. 2013. "Climate Change Governance: The Challenge for Politics and Public Administration, Enterprises and Civil Society." In *Climate Change Governance*. Heidelberg: Springer.

Kurtz, Gerrit. 2012. "Securitization of Climate Change in the United Nations 2007 - 2010." In *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*, edited by Jurgen Scheffran, Michael Brzoska, Hans Gunter Brauch, Peter Michael Link and Janpeter Schilling, vol. 8, pp. 669 - 684. Berlin: Springer.

Lacy, Mark J. 2005. *Security and Climate Change: International relations and the limits of realism*. Edited by Matthew Paterson and Graham Smith, *Routledge Research in Environmental Politics*. London: Routledge.

Lamy, Steven L. 2005. "Contemporary mainstream approaches: neo-realism and neo-liberalism." In *The Globalisation of World Politics: An Introduction to International Relations*, edited by John Bayliss and Steve Smith, Third, pp. 205 - 224. Oxford: Oxford University Press.

Lang, Christoph I. 1995. "Environmental Degradation in Kenya as a Cause of Political Conflict, Social Stress, and Ethnic Tensions." In *CSS Environment and Conflicts Project (ENCOP)*, edited by Günter Bächler and Kurt R. Spillmann, vol. 12 no. 1. Zurich: Centre for Security Studies. Accessed on 13 February 2013, http://www.css.ethz.ch/publications/DetailansichtPubDB_EN?rec_id=2831.

Lawson, Robert. 2007. "Climate Change in the Asia-Pacific Region: Security Implications for Australia." In *Centre for Defence and Strategic Studies Australian Defence College Shedden Papers*. Canberra: Department of Defence. Accessed on 5 May 2012, http://www.defence.gov.au/ADC/Publications/Shedden/2008/Publctns_ShedPaper_050310_ClimateChangeintheAsiaPacificRegion.pdf.

Layton, Peter. 2014. "What strategy for the new Defence White Paper?" In *The Strategist*, 13 March 2014. Canberra: Australian Strategic Policy Institute. Accessed on 23 March 2014, http://www.aspistrategist.org.au/long-live-the-force-structure/.

Leahy, Peter. 2004. "The Australian Army Reserve: Relevant and Ready." *Australian Army Journal For the Profession of Arms*, vol. 2, no. 1.

Leahy, Peter. 2008. "Introduction By The Chief of Army." *Australian Army Journal For The Profession of Arms*, vol. 5, no. 2.

Leahy, Peter. 2010. "How do we know when we are at war?" In *Lowy Institute Perspectives: Occasional Papers and Speeches*, 22 July 2010. Sydney: Lowy Institute. Accessed on 12 May 2013, http://www.lowyinstitute.org/publications/how-do-we-know-when-we-are-war.

Leal-Arcas, Rafael. 2011. "Top-Down Versus Bottom-Up Approaches for Climate Change Negotiations: An Analysis." *The IUP Journal of Governance and Public Policy* vol. 6, no. 4:7 - 52.

Leaning, Jennifer. 2009. "Health and Human Security in the 21st Century." In *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Gunter Brauch, Ursula Oswald Spring, John Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Bechir Chourou and Heinz Krummenacher, vol. 4. Berlin: Springer-Verlag.

Leemans, Rik, Ghassem Asrar, Antonio Busalacchi, Josep Canadell, John Ingram, Anne Larigauderie, Harold Mooney, Carlos Nobre, Anand Patwardhan, Martin Rice, Falk Schmidt, Sybil Seitzinger, Hassan Virji, Charles Vörösmarty, and Oran Young. 2009. "Developing a common strategy for integrative global environmental change research and outreach: the Earth System Science Partnership (ESSP)." *Current Opinion Environmental Sustainability*, vol. 1, no. 1:4 - 13. doi: 10.1016/j.cosust.2009.07.013.

Lenton, Timothy M., Hermann Held, Elmar Kriegler, Jim W. Hall, Wolfgang Lucht, Stefan Rahmstorf, and Hans Joachim Schellnhuber. 2008. "Tipping elements in the Earth's climate system." *Proceedings of the National Academy of Sciences of the United States of America*, vol. 105, no. 5:1786 - 1793.

LeTreut, H., R. Somerville, U. Cubasch, Y. Ding, C. Mauritzen, A. Mokssit, T. Peterson, and M. Prather. 2007. "Historical Overview of Climate Change." In *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by S Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller, pp. 93 - 128. Cambridge: Cambridge University Press. Accessed on 15 June 2012, http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter1.pdf.

Levy, Marc A. 1995. "Is the Environment a National Security Issue?" *International Security*, vol. 20, no. 2:35 - 62. doi: 10.1177/1354066198004002004.

Libiszewski, Stephan. 1995. "Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict." In *CSS Environment and Conflicts Project (ENCOP)*, edited by Günter Bächler and Kurt R. Spillmann, vol. 13no. 1. Zurich: Center for Security Studies. Accessed on 3 May 2013, http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?id=248.

Liska, Adam J., and Richard K. Perriny. 2010. "Securing Foreign Oil: A Case for Including Military Operations in the Climate Change Impact of Fuels." *Environment*, vol. 52, no. 4:9-22.

Lizza, Ryan. 2010. "As The World Burns." *The New Yorker*, Condé Nast, 11 October 2010. Accessed on 10 November 2014, http://www.newyorker.com/reporting/2010/10/11/101011fa_fact_lizza?currentPage=all.

Low, Nicholas, and Brendan Gleeson. 1998. *Justice, Society and Nature: An Exploration of Political Ecology*. London: Routledge.

Lucke, Franziskus von, Thomas Diez, and Zehra Wellmann. 2013. "What's at Stake in Securitising Climate Change? Towards a Differentiated Approach." European Conference on International Relations, Warsaw, September 2013.

Lynas, Mark. 2009. "How do I know China wrecked the Copenhagen deal? I was in the room." *The Guardian*, The Guardian, 23 December 2009. Accessed on 10 May 2013, http://www.theguardian.com/environment/2009/dec/22/copenhagen-climate-change-mark-lynas.

Lynn, William J. 2009. "Remarks at the Connect U.S. Fund." In *Deputy Secretary of Defense Speech*, 14 December 2009. Washington, DC: US Department of Defense. Accessed on 4 May 2013, http://archive.defense.gov/Speeches/Speech.aspx?SpeechID=1407.

Mabus, Ray. 2009a. "Remarks by the Honourable Ray Mabus Secretary of the Navy at Current Strategy Forum Naval War College, Newport, Rhode Island " In *Transcripts of the Secretary of Navy*, 16 June 2009. Washington, DC: United States Navy. Accessed on 12 June 2013,

http://www.navy.mil/navydata/people/secnav/Mabus/Speech/Current%20Strategy%20Forum.pdf.

Mabus, Ray. 2009b. "Remarks by the Honourable Ray Mabus Secretary of the Navy at International Seapower Symposium Naval War College, Newport, Rhode Island." In *Transcripts of the Secretary of Navy*, 7 October 2009. Washington, DC: United States Navy. Accessed on 8 August 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/International%20Seapower%20Symposium%207%20Oct%2009%20Rel.pdf.

Mabus, Ray. 2009c. "Remarks by the Honourable Ray Mabus Secretary of the Navy, Defense Attache Association, Washington DC " In *Transcripts of the Secretary of Navy*, 18 November 2009. Washington, DC: United States Navy. Accessed on 6 September 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/Defense%20Attache%20Association%20paginated%20-%2018%20Nov%2009.pdf.

Mabus, Ray. 2009d. "Remarks by the Honourable Ray Mabus Secretary of the Navy, Naval Energy Forum, Hilton McLean, Tysons Corner, McLean, Virginia " In *Transcripts of the Secretary of Navy*, 14 October 2009. Washington, DC: United States Navy. Accessed on 8 September 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/SECNAV%20Energy%20Forum%2014%20Oct%2009%20Rel1.pdf.

Mabus, Ray. 2009e. "Remarks by the Honourable Ray Mabus Secretary of the Navy,Hamer Institute Speech, Jackson State University, Jackson, Mississippi " In *Transcripts of the Secretary of Navy*, 9 October 2009. Washingston, DC: United States Navy. Accessed on 7 September 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/Hamer%20Institute%20Naming%20of%20Medgar%20Evers%209%20Oct%2009%20Rel.pdf.

Mabus, Ray. 2010a. "Remarks by the Honourable Ray Mabus Secretary of the Navy, Center for Naval Analysis Earth Day Luncheon, Alexandria, VA (29 April)." In *Transcripts of the Secretary of Navy*, 29 April 2010. Washington, DC: United States Navy. Accessed on 8 September 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/Center%20for%20Naval%20Analysis%20Earth%20Day%20Luncheon%2029%20Apr%2010.pdf.

Mabus, Ray. 2010b. "Remarks by the Honourable Ray Mabus Secretary of the Navy, The Commonwealth Club, San Francisco, CA " In *Transcripts of the Secretary of Navy*, 16 August 2010. Washington, DC: United States Navy. Accessed on 9 October 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/commonwealthclub.pdf.

Mabus, Ray. 2012a. "Remarks by the Honourable Ray Mabus Secretary of the Navy, Global Conference on Oceans, Climate and Security: Making the Connections, Boston, Mass." In *Transcripts of the Secretary of Navy*, 22 May 2012. Washington, DC: United States Navy. Accessed on 8 October 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/OceansConferenceMay12v2.pdf.

Mabus, Ray. 2012b. "Remarks by the Honourable Ray Mabus Secretary of the Navy, Naval Energy Forum, Washington DC " In *Transcripts of the Secretary of Navy*, 17 October 2012.

Washington, DC: United States Navy. Accessed on 1 October 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/navalenergyforumtranscriptfinal.pdf.

Mabus, Ray. 2012c. "Remarks by the Honourable Ray Mabus Secretary of the Navy, Senate Committee on Energy and Natural Resources, Norfolk, VA " In *Transcripts of the Secretary of Navy*, 12 March 2012. Washington, DC: United States Navy. Accessed on 4 October 2013, http://www.navy.mil/navydata/people/secnav/Mabus/Speech/Senate%20Committee%20on%20Energy%20and%20Natural%20Resources%20oral%20testimonyAsPrepared.pdf.

Macintosh, Andrew, Deb Wilkinson, and Richard Denniss. 2010. "Climate Change." In *The Rudd Government: Australian Commonwealth Administration 2007-2010*, edited by Chris Aulich and Mark Evans, pp. 596 - 652. Canberra: The Australian National University E Press. Accessed on 3 March 2014, http://press.anu.edu.au/apps/bookworm/view/The+Rudd+Government%3A+Australian+Commonwealth+Administration+%092007+-+2010/5091/ch11.xhtml#toc-anchor.

Mackellar, Dorothea. 1908. "My Country." Published online: The Estate of Dorothea Mackellar. Published online 5 September 1908, http://www.dorotheamackellar.com.au/archive/mycountry.htm.

Major Economies Forum Declaration. 2009. "Declaration by the Leaders of the Major Economies Forum on Energy and Climate." Washington, DC: Office of the Federal Register, National Archives and Records Administration. Accessed on 11 October 2013, http://www.gpo.gov/fdsys/granule/PPP-2009-book2/PPP-2009-book2-Doc-pg1072/content-detail.html.

Mathews, Jessican Tuchman. 1989. "Redefining Security." *Foreign Affairs*, vol. 68, no. 2:162 - 177.

Matthew, Richard A. 1995. "Environmental Security: Demystifying the Concept, Clarifying the Stakes." In *The Environmental Change and Security Project*, edited by P. J. Simmons, pp. 14 - 23. Washington, DC: The Woodrow Wilson Centre. Accessed on 12 June 2013, http://www.wilsoncenter.org/sites/default/files/report1a.pdf.

Matthew, Richard A., and Bryan McDonald. 2009. "Environmental Security: Academic and Policy Debates in North America." In *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, edited by Hans Günter Brauch, Úrsula Oswald SpringJohn Grin, Czeslaw Mesjasz, Patricia Kameri-Mbote, Navnita Chadha Behera, Bechir Chourou and Heinz Krummenacher, vol. 4. Berlin: Springer-Verlag.

McCain, John. 2012. "Letter from Senator McCain to Navy Secretary Ray Mabus Regarding Biofuels " In *John McCain Press Releases*, 27 July 2012. Published online: John McCain Accessed on 12 March 2013, http://www.mccain.senate.gov/public/index.cfm/press-releases?ID=ca4414f1-e686-7cb6-820e-995f3289f68a.

McDonald, Matt. 2008. "Securitization and the Construction of Security." *European Journal of International Relations*, vol. 14, no. 4:563 - 587. doi: 10.1177/1354066108097553.

McDonald, Matt. 2012. "The Failed Securitization of Climate Change in Australia." *Australian Journal of Political Science*, vol. 47, no. 4:579 - 592. doi: 10.1080/10361146.2012.731487.

McDonald, Matt. 2013. "Discourses of climate security." *Political Geography*, vol. 33, no. March:42- 51. doi: 10.1016/j.polgeo.2013.01.002.

McDonald, Matt. 2015. "Ecological Security." Online: E-IR. Accessed on 8 February 2016, http://www.e-ir.info/2015/11/28/ecological-security/.

Mearsheimer, John J. 1995. "The False Promise of International Institutions." *International Security*, vol. 19, no. 3:5 - 49.

Mills, Sara. 2003. *Michel Foucault*. Edited by Robert Eaglestone, *Routledge Critical Thinkers*. London: Routledge.

Morgenthau, Hans J., and Kenneth W. Thompson. 1985. *Politics Among Nations: The Struggle for Power*. Sixth ed. New York: Knopf. Original edition, 1948. Reprint, 1985.

Morris, Sophie. 2015. "Tony Abbott's affinity with ADF reflected in parliament." *The Saturday Paper*, Morry Schwartz. Accessed on 23 March 2013, http://www.thesaturdaypaper.com.au/news/politics/2015/03/14/tony-abbotts-affinity-with-adf-reflected-parliament/14262516001605#.VQ_vi_yUfh4.

Morrison, David. 2012. "Speech to Australian Strategic Policy Institute." In *Chief of Army Speeches and Transcripts*, 11 April 2012. Canberra: Department of Defence. Accessed on 12 April 2014, http://www.army.gov.au/Our-work/Speeches-and-transcripts/Australian-Strategic-Policy-Institute-2012.

Morrison, David. 2013. "Speech to Royal United Services Institute, Sydney " In *Chief of Army Speeches and Transcripts*, 26 March 2013. Canberra: Department of Defence. http://www.army.gov.au/Our-work/Speeches-and-transcripts/~/media/Files/Speeches/CA_RUSI_26MAR2013.pdf.

Mullen, Michael G. 2011. "From the Chairman." *Joint Force Quarterly*, no. 60:2 - 3.

Myers, Norman. 1994. *Ultimate Security: the environmental basis of political stability*. New York: W. W. Norton.

NAB. 2015. "Climate Change." Published online: National Australia Bank. Accessed on 12 October 2015, https://www.nab.com.au/about-us/corporate-responsibility/responsibility-management-of-our-business/environment/climate-change.

An Act to establish a comprehensive and coordinated national climate policy and program, and for other purposes. National Climate Program Act (95th Congress, USC 2901, Public Law 95-367, 17 September 1978. Accessed on 21 September 2015, http://www.gpo.gov/fdsys/pkg/STATUTE-92/pdf/STATUTE-92-Pg601.pdf.

National Energy Policy Development Group. 2001. *National Energy Policy: Report of the National Energy Policy Development Group* Washington, DC: US Government Printing Office. Accessed on 13 January 2013, http://www.wtrg.com/EnergyReport/National-Energy-Policy.pdf.

Navari, Cornellia. 2008. "Liberalism." In *Security Studies: An Introduction*, edited by Paul D. Williams, pp. 29 - 43. London: Routledge.

NCCARF. 2013. *Emergency management and climate change adaptation*. Policy Guidance Briefs: Brisbane: National Climate Change Adaptation Research Facility. Accessed on 5 October 2015, https://www.nccarf.edu.au/sites/default/files/attached_files_publications/EM-A4-Webview.pdf.

Nelson, Brendan. 2007a. "Address to the CEDA State of the Nation Conference 2007, 'Constructing a Regional Security Community'." In *Transcripts of the Minister for Defence* 14 June 2007. Canberra: Department of Defence. Accessed on 3 March 2013, http://defence.gov.au/minister/52tpl.cfm?CurrentId=6775.

Nelson, Brendan. 2007b. "Opening Address to D+I Conference Adelaide." In *Transcripts of the Minister for Defence* 22 August 2007. Canberra: Department of Defence. Accessed on 3 March 2013, http://www.defence.gov.au/minister/51tpl.cfm?CurrentId=7038.

Newell, Peter, Harriet Bulkeley, Karen Turner, Christopher Shaw, Simon Caney, Elizabeth Shove, and Nicholas Pidgeon. 2015. "Governance traps in climate change politics: re-framing the debate in terms of responsibilities and rights." *WIREs Climat Change*, vol. 6, no. Nov/Dec:535 - 540. doi: 10.1002/wcc.356.

Nolan, Jessica M. 2010. ""An Inconvenient Truth" Increases Knowledge, Concern, and Willingness to Reduce Greenhouse Gases." *Environment and Behaviour*, vol. 45, no. 5:643 - 658. doi: 10.1177/0013916509357696.

Nordas, Ragnhild, and Nils Petter Gleditsch. 2007. "Climate Change and Conflict." *Political Geography*, vol. 26, no. 6:627 - 628.

O'Lear, Shannon, Chad M. Briggs, and G. Michael Denning. 2013. "Environmental Security, Military Planning, and Civilian Research." *Environment: Science and Policy for Sustainable Development*, vol. 55, no. 5:3 - 13. doi: 10.1080/00139157.2013.824327.

O'Lear, Shannon, and Simon Dalby. 2016. *Reframing Climate Change: Constructing Ecological Geopolitics*. Edited by Shannon O'Lear and Simon Dalby. London: Routledge.

O'Neill, Kate. 2009. *The Environment and International Relations*. Cambridge: Cambridge University Press.

Obama, Barack H. 2008. "President-elect Barack Obama to deliver taped greeting to Bi-partisan Governors Climate Summit." In *Obama-Biden Transition Project Press Releases*. Washington, DC: The Office of the President Elect. Accessed on 3 March 2013, http://change.gov/newsroom/entry/president_elect_barack_obama_to_deliver_taped_greeting_to_bi_partisan_gover/.

Obama, Barack H. 2009a. "A Just and Lasting Peace." In *Nobel Lecture*, 10 December 2009. Oslo: Nobel Media. Accessed on 13 October 2013, http://www.nobelprize.org/nobel_prizes/peace/laureates/2009/obama-lecture_en.html.

Obama, Barack H. 2009b. "The President's News Conference in Copenhagen." In *Public Papers of the Presidents of the United States: Barack Obama* 18 December 2009, vol. (Book) II, pp. 1823 - 1828. Washington, DC: US Government Printing Office. Accessed on 9

November 2013, http://www.gpo.gov/fdsys/granule/PPP-2009-book2/PPP-2009-book2-Doc-pg1823-2/content-detail.html.

Obama, Barack H. 2009c. "President Obama on Historic Energy Bill." In *White House Briefing Room*, 24 June 2009. Washington, DC: White House. Accessed on 10 October 2014, http://www.whitehouse.gov/video/President-Obama-on-Historic-Energy-Bill/.

Obama, Barack H. 2009d. "Remarks at a Plenary Session of the United Nations Climate Change Conference in Copenhagen, Denmark." In *Public Papers of the Presidents of the United States: Barack Obama* 18 December 2009, vol. (Book) II, pp. 1820 - 1822. Washington, DC: US Government Printing Office. Accessed on 13 October 2013, http://www.gpo.gov/fdsys/granule/PPP-2009-book2/PPP-2009-book2-Doc-pg1820/content-detail.html.

Obama, Barack H. 2009e. "Remarks at the United Nations Climate Change Summit in New York City." In *The American Presidency Project*, edited by Gerhard Peters and John T. Woolley, 22 September 2009. Published online: The American Presidency Project. Accessed on 3 March 2014, http://www.presidency.ucsb.edu/ws/index.php?pid=86657&st=&st1=.

Obama, Barack H. 2009f. "Remarks by the President at United Nations Secretary General Ban Ki-Moon's Climate Change Summit (United Nations Headquarters, New York)." In *President Barack Obama, Speeches and Remarks*, 22 September 2009. Washington, DC: White House. Accessed on 4 November 2013, http://www.whitehouse.gov/the-press-office/remarks-president-un-secretary-general-ban-ki-moons-climate-change-summit.

Obama, Barack H. 2009g. "Remarks by the President to the United Nations General Assembly (United Nations Headquarters, New York)." In *President Obama, Speches and Remarks*, 23 September 2009. Washington, DC: White House. Accessed on 8 November 2013, http://www.whitehouse.gov/the_press_office/Remarks-by-the-President-to-the-United-Nations-General-Assembly.

Obama, Barack H. 2009h. "Remarks on Energy." In *Compilation of Presidential Documents*, (January, 26), 26 January 2009. Washington, DC: US Government Printing Office. Accessed on 3 September 2013, http://www.gpo.gov/fdsys/pkg/DCPD-200900019/content-detail.html.

Obama, Barack H. 2009i. "Remarks on the Declaration by the Major Economies Forum on Energy and Climate Change in L'Aquila, Italy." In *Public Papers of the Presidents of the United States: Barack Obama* 9 July 2009, vol. (Book) II, pp. 1072 - 1075. Washington, DC: US Government Printing Office. Accessed on 11 October 2013, http://www.gpo.gov/fdsys/granule/PPP-2009-book2/PPP-2009-book2-Doc-pg1072/content-detail.html.

Obama, Barack H. 2009j. "Remarks to the Ghanian Parliament in Accra." In *Public Papers of the Presidents of the United States: Barack Obama*, 11 July 2009, vol. (Book) II, pp. 1087 - 1092. Washington, DC: US Government Printing Office. Accessed on 8 November 2013, http://www.gpo.gov/fdsys/granule/PPP-2009-book2/PPP-2009-book2-Doc-pg1087/content-detail.html.

Obama, Barack H. 2009k. "Remarks to the United Nations General Assembly in New York City." In *Public Papers of the Presidents of the United States: Barack Obama* 23 September 2009, vol. (Book) II, pp. 1440 - 1447. Washington, DC: US Government Printing Office.

Accessed on 4 May 2013, http://www.gpo.gov/fdsys/granule/PPP-2009-book2/PPP-2009-book2-Doc-pg1440/content-detail.html.

Obama, Barack H. 2010. "Remarks by The President on Energy Security at Andrews Air Force Base." In *President Barack Obama, Speeches and Remarks*, 31 March 2010. Washington, DC: White House. Accessed on 23 October 2014, https://www.whitehouse.gov/the-press-office/remarks-president-energy-security-andrews-air-force-base-3312010.

Obama, Barack H. 2011. "The President's news conference in Kapolei, Hawaii." In *Compilation of Presidential Documents*, 13 November 2011. Washington, DC: US Government Printing Office. Accessed on 13 October 2013, http://www.gpo.gov/fdsys/pkg/DCPD-201100864/content-detail.html.

Obama, Barack H. 2012a. "Address before a Joint Session of Congress on the State of the Union." In *The American Presidency Project*, edited by Gerhard Peters and John T. Woolley. Published online: The American Presidency Project. Accessed on 18 August 2013, http://www.presidency.ucsb.edu/ws/?pid=99000.

Obama, Barack H. 2012b. "Remarks by the President in a News Conference." In *President Barack Obama, Speeches and Remarks*, 14 November 2012. Washington, DC: White House. Accessed on 7 October 2014, http://www.whitehouse.gov//the-press-office/2012/11/14/remarks-president-news-conference.

Obama, Barack H. 2014. "Remarks by the President at U.N. Climate Change Summit." In *White House Briefing Room*, 23 September 2014. Washington, DC: White House. Accessed on 12 January 2015, http://www.whitehouse.gov/the-press-office/2014/09/23/remarks-president-un-climate-change-summit.

Oels, Angela. 2012. "From 'Securitization' of Climate Change to 'Climatization' of the Security Field: Comparing Three Theoretical Perspectives." In *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*, edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link and Janpeter Schilling, vol. 8, pp. 185 - 206. Berlin: Springer.

Oliver, Alex. 2015. *Lowy Institute Poll 2015*. Sydney: The Lowy Institute. Accessed on 12 September 2015, http://www.lowyinstitute.org/files/final_2015_lowy_institute_poll.pdf.

Olson, Wyatt. 2014. "PACOM not waiting on politics to plan for climate change challenges." Hawaii: Stars and Stripes. Accessed on 14 December 2014, http://www.stripes.com/news/pacom-not-waiting-on-politics-to-plan-for-climate-change-challenges-1.297433.

Oswald Spring, Úrsula, and Hans Günter Brauch. 2011. "Coping with Global Environmental Change - Sustainability Revolution and Sustainable Peace." In *Coping with Global Environmental Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*, edited by Hans Gunter Brauch, Ursula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Bechir Chourou, Pal Dunay and Jorn Birkmann, vol. 5, pp. 1487 - 1503. Berlin: Springer-Verlag.

Palazzo, Albert. 2012. "The Future of War Debate in Australia: Why has there not been one? Has the need for one now arrived?" In *Land Warfare Studies Centre Working Paper Series*, Working Paper 140. Canberra: Land Warfare Studies Centre. Accessed on 12 June 2013, http://www.army.gov.au/Our-future/DARA/Our-publications/~/media/Files/Our%20future/DARA%20Publications/WP/WP140-The-Future-of-War-Debate-in-Australia.ashx.

Palmer, Dr Jennifer L. 2009. "Addressing Energy as a Military Cost." *Australian Army Journal For The Profession of Arms*, no. 178:6 - 31.

Panetta, Leon E. 2012a. "Environmental Defense Fund Reception (Energy, Security, and the Environment)." In *Secretary of Defense Speech*, 2 May 2012. Washington, DC: Department of Defense. Accessed on 3 June 2013, http://archive.defense.gov/Speeches/Speech.aspx?SpeechID=1667.

Panetta, Leon E. 2012b. "Shangri-La Security Dialogue (Singapore)." In *The IISS Shangri-La Dialogue 14th Asia Security Summit*, 2 June 2012. Washington, DC: International Institute for Strategic Studies. Accessed on 2 November 2013, https://www.iiss.org/en/events/shangri%20la%20dialogue/archive/sld12-43d9/first-plenary-session-2749/leon-panetta-d67b.

Paris, Roland. 2001. "Human Security: Paradigm Shift or Hot Air?" *International Security*, vol. 26, no. 2:87 - 102.

Paul Ehrlich and Anne Ehrlich. 1988. "The Environmental Dimensions of National Security." In *Global Problems and Common Security: Annals of Pugwash 1988*, edited by J. Rotblat and V. I. Goldanskii, pp. 180 - 190. Heidelberg: Springer-Verlag.

Pearce, Alix. 2013. "The New Security Climate: Rethinking Australian Defence Policy in an Age of Climate Change." Honours in Government and International Relations, School of Social and Political Sciences, University of Sydney.

Pecl, Gretta, Stewart Frusher, Caleb Gardner, Marcus Haward, Alistair Hobday, Sarah Jennings, Melissa Nursey-Bray, André Punt, Hilary Revill, and Ingrid van Putten. 2009. *The east coast Tasmanian rock lobster fishery – vulnerability to climate change impacts and adaptation response options*. Department of Climate Change. Canberra: Commonwealth of Australia. Accessed on 3 October 2014, http://www.environment.gov.au/system/files/resources/48b0b14e-9234-480f-9a6b-602274396991/files/rock-lobser-report.pdf.

Penny, Christopher K. 2007. *Climate Change and the Security Council: A Preliminary Framework for Implementing Remedial Measures through Chapter VII of the UN Charter*. CISDL Legal Working Paper Series on Climate Change Law and Policy: Montreal: Centre for International Sustainable Development Law. Accessed on 12 June 2013, http://cisdl.org/public/docs/legal/Penny%20-%20Climate%20Change%20and%20the%20Security%20Council.pdf.

Personal Communication. 2013. "Email correspondence." Unpublished. 17 July 2013.

Petherick, Anna. 2012. "Count Your Blessings." *Nature*, vol. 2, no. 10:707 - 708. doi: 10.1038/nclimate1701.

PEW. 2009. Economy, Jobs Trump All Other Policy Priorities In 2009: Environmental, Immigration, Health Care Slip Down the List. edited by Andrew Kohut. Washington, DC: The PEW Research Cente.

Pittock, A. Barrie. 2009. *Climate Change: The Science, Impacts and Solutions*. Second ed. Melbourne: CSIRO Publishing

PLA. 2015. *China's Military Strategy*. Beijing: The State Council Information Office of the People's Republic of China. Accessed on 25 July 2015, http://news.xinhuanet.com/english/china/2015-05/26/c_134271001.htm.

Pope Francis. 2015. *On care for our common home*, *Encyclical Letter Laudato Si' Of the Holy Father Francis*. Vatican: Vatican Press.

Press, Anthony, Anthony Bergin, and Eliza Garnsey. 2013. *Heavy Weather: Climate and the Australian Defence Force*. Special Report 49. Canberra: Australian Strategic Policy Institute. Accessed on 12 March 2014, https://www.aspi.org.au/publications/special-report-issue-49-heavy-weather-climate-and-the-australian-defence-force.

Qu´er´e, C. Le, R. J. Andres, T. Boden, T. Conway, R. A. Houghton, J. I. House, G. Marland, G. P. Peters, G. van der Werf, A. Ahlstrom, R. M. Andrew, L. Bopp, J. G. Canadell, P. Ciais, S. C. Doney, C. Enright, P. Friedlingstein, C. Huntingford, A. K. Jain, C. Jourdain, E. Kato, R. F. Keeling, K. Klein Goldewijk, S. Levis, P. Levy, M. Lomas, B. Poulter, M. R. Raupach, J. Schwinger, S. Sitch, B. D. Stocker, N. Viovy, S. Zaehle, and N. Zeng. 2013. "The Global Carbon Budget 1959 - 2011." *Earth System Science Data Discussions*, vol. 5, no. 1:165 - 185. doi: 10.5194/essdd-5-1107-2012.

Quéré, C. Le, R. Moriarty, R. M. Andrew, G. P. Peters, P. Ciais, P. Friedlingstein, S. D. Jones, S. Sitch, P. Tans, A. Arneth, T. A. Boden, L. Bopp, Y. Bozec, J. G. Canadell, F. Chevallier, C. E. Cosca, I. Harris, M. Hoppema, R. A. Houghton, J. I. House, T. Johannessen, E. Kato, A. K. Jain, R. F. Keeling, V. Kitidis, K. Klein Goldewijk, C. Koven, C. Landa, P. Landschützer, A. Lenton, I. Lima, G. Marland, J. T. Mathis, N. Metzl, Y. Nojiri, A. Olsen, W. Peters, T. Ono, B. Pfeil, B. Poulter, M. R. Raupach, P. Regnier, C. Rödenbeck, S. Saito, J. E. Salisbury, U. Schuster, J. Schwinger, R. Séférian, J. Segschneider, T. Steinhoff, B. D. Stocker, A. J. Sutton, T. Takahashi, B. Tilbrook, N. Viovy, Y. P. Wang, R. Wanninkhof, G. Van der Werf, A. Wiltshire, and N. Zeng. 2014. "Global Carbon Budget 2014." *Earth System Science Data Discussions*, vol. 7, no. 2:521 - 610. doi: 10.5194/essdd-7-521-2014.

Reich, Jenny, John Hearps, Andrew Cohn, Jeromy Temple, and Peter McDonald. 2006. *Defence Personnel Environment Scan 2025*. Canberra: Director Strategic Personnel Planning and Research for Department of Defence. Accessed on 13 February 2012, http://trove.nla.gov.au/work/26715104?selectedversion=NBD41326420.

Revelle, Roger R., Robert B. Bacastow, James Baker, Charles D. Keeling, Hans H. Landsberg, Ralph A. Llewellyn, Murray Mitchell, Walter H. Munk, Harry Perry, George D. Robinson, Joseph Smagorinsky, Verner E. Suomi, and Warren M. Washington. 1977. *Studies in Geophysics: Energy and Climate*. Washington, DC: National Academy of Sciences. Accessed on 17 January 2011, http://www.nap.edu/catalog.php?record_id=12024.

Rogelj, Joeri, Malte Meinshausen, and Reto Knutti. 2012. "Global warming under old and new scenarios using IPCC climate sensitivity range estimates." *Nature*, vol. 2, no. 4:248 - 253. doi: 10.1038/nclimate1385.

Roughead, Gary. 2009. "Chief of Naval Operations, ADM Gary Roughead delivers remarks at the Current Strategy Forum, Naval War College, Newport, RI." In *2010 Speeches: ADM Gary Roughead*, 16 June 2009. Washington, DC: US Navy. Accessed on 7 April 2013, http://www.navy.mil/navydata/leadership/mist.asp?x=S&yr=2010.

Roughead, Gary. 2010a. "Chief of Naval Operations Adm. Gary Roughead deliver remarks at Government Executive Magazine at the National Press Club." In *2010 Speeches: ADM Gary Roughead*, 10 November 2010. Washington, DC: US Navy. http://www.navy.mil/navydata/people/cno/Roughead/Speech/101111-govexec-roughead.pdf.

Roughead, Gary. 2010b. "Chief of Naval Operations Adm. Gary Roughead Delivers Remarks during the Current Strategy Forum Newport, Rhode Island." In *2010 Speeches: ADM Gary Roughead*, 8 June 2013. Washington, DC: US Navy. Accessed on 6 August 2013, http://www.navy.mil/navydata/leadership/mist.asp?x=S&yr=2010.

Roughead, Gary. 2010c. "Chief of Naval Operations Admiral Gary Roughead Remarks as delivered World Affairs Council of Northern California." In *2010 Speeches: ADM Gary Roughead*, 5 August 2010. Washington, DC: US Navy. Accessed on 6 September 2013, http://www.navy.mil/navydata/leadership/mist.asp?x=S&yr=2010.

Roughead, Gary. 2010d. "Chief of Naval Operations, ADM Gary Roughead delivers remarks at the Navy Energy Forum." In *2010 Speeches: ADM Gary Roughead*, 12 October 2010. Washington, DC: US Navy. Accessed on 12 October 2013, http://www.navy.mil/navydata/leadership/mist.asp?x=S&yr=2010.

Roughead, Gary. 2011a. "Chief of Naval Operations (CNO) Adm. Gary Roughead speaks at Active in the Arctic Seminar June 16, 2011." In *2011 Speeches: ADM Gary Roughead*, 16 June 2011. Washington, DC: US Navy. Accessed on 8 June 2013, http://www.navy.mil/navydata/people/cno/Roughead/Speech/110616%20Arctic%20Capitol%20Hill.pdf.

Roughead, Gary. 2011b. "Chief of Naval Operations Adm. Gary Roughead delivers remarks at the 4th Symposium on the Impacts of an Ice-Diminishing Arctic on Naval & Maritime Operations." In *2011 Speeches: ADM Gary Roughead*, 20 June 2011. Washington, DC: US Navy. Accessed on 7 September 2013, http://www.navy.mil/navydata/people/cno/Roughead/Speech/110620%20Arctic%20Symposium.pdf.

Royal Australian Navy. 2007. *Future Maritime Operating Concept - 2025: Maritime Force Projection and Control*. Canberra: Department of Defence. Accessed on 12 June 2013, http://www.navy.gov.au/media-room/publications/future-maritime-operating-concept-2025.

Rudd, Kevin. 2010a. "Prime Minister Speech at the opening of the National Security College Australian National University, Canberra: The establishment of the National Security College of Australia " In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 24 April 2010. Canberra: Department of the Prime Minister and Cabinet. Accessed on 3 March 2014, http://pmtranscripts.dpmc.gov.au/release/transcript-17245.

Rudd, Kevin M. 2008a. "Address to the East Asia Forum in conjunction with the Australian National University, Advancing Australia's Global and Regional Economic Interests." In *PM Transcripts: Transcripts by the Prime Ministers of Australia*, 26 March 2008. Canberra: Department of Prime Minister and Cabinet. Accessed on 11 February 2014, http://pmtranscripts.dpmc.gov.au/release/transcript-15823.

Rudd, Kevin M. 2008b. "Address to the London School of Economics: Australia and the UK - Global Partners in shaping the future Global Order, London." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 7 April 2008. Canberra: Department of Prime Minister and Cabinet. Accessed on 18 February 2014, http://pmtranscripts.dpmc.gov.au/release/transcript-15847.

Rudd, Kevin M. 2008c. "Australia 2020 - Setting our Nation's Sights for the Future, Address to the Sydney Institute Annual Dinner 2008, Grand Habour Ballroom, Star City, Sydney." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 16 April 2008. Canberra: Department of Prime Minister and Cabinet. Accessed on 5 March 2014, http://pmtranscripts.dpmc.gov.au/release/transcript-15873.

Rudd, Kevin M. 2008d. "Building a Better World Together, Speech at Kyoto University." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 09 June 2008. Canberrra: Department of Prime Minister and Cabinet. Accessed on 2 April 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-15955.

Rudd, Kevin M. 2008e. *Building on ASEANs success: towards an Asia-Pacific Community, Singapore Lecture Series*. Singapore: Insitute of South East Asian Studies Publishing.

Rudd, Kevin M. 2008f. "Climate Change and Water." Canberra: National Library of Australia Accessed on 10 Feb 2014, http://pandora.nla.gov.au/pan/79983/20080812-0001/www.pm.gov.au/topics/climate.html.

Rudd, Kevin M. 2008g. "The First National Security Statement to the Parliament Address by the Prime Minister of Australia The Hon. Kevin Rudd MP." In *PM Transcripts: Transcripts of the Prime Ministers of Australia*, 4 December 2008. Canberra: Department of Prime Minister and Cabinet. Accessed on 5 March 2013, http://pmtranscripts.dpmc.gov.au/release/transcript-16289.

Rudd, Kevin M. 2009a. "Address to the 64th session of the United Nations General Assembly, New York." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 23 September 2009. Canberra: Department of Prime Minister and Cabinet. Accessed on 12 March 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-16828.

Rudd, Kevin M. 2009b. "Address to the Australia-Israel Chamber of Commerce and General Sir John Monash Foundation Leadership Luncheon Docklands, Melbourne." In *PM Transcripts: Transcripts by the Prime Ministers of Australia*, 24 April 2009. Canberra: Department of Prime Minister and Cabinet. Accessed on 12 March 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-16515.

Rudd, Kevin M. 2009c. "Address to the Lowy Institute." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 06 November 2009. Canberra: Department of Prime Minister and Cabinet. Accessed on 12 March 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-16904.

Rudd, Kevin M. 2009d. "Focus on Climate Change - Prime Minister Blog." Canberra: National Library of Australia. Accessed on 11 Feb 2014, http://pandora.nla.gov.au/pan/79983/20091030-1529/www.pm.gov.au/PM_Connect/PMs_Blog/Climate_Change_Blog.html.

Rudd, Kevin M. 2009e. "Partners in the Global Economy - Australia and the United States, Address to the US Chamber of Commerce, Washington." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 31 March 2009. Canberra: Department of Prime Minister and Cabinet. Accessed on 3 March 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-15832.

Rudd, Kevin M. 2009f. "Transcript of address at the close of the Pacific Islands Forum Cairns." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 7 August 2009. Canberra: Department of Prime Minister and Cabinet. Accessed on 4 March 2013, https://pmtranscripts.dpmc.gov.au/release/transcript-16737.

Rudd, Kevin M. 2009g. "Transcript of joint doorstop at the United Nations with Minister Wong New York." In *PM Transcripts: Transcripts by the Prime Ministers of Australia*, 23 September 2009. Canberra: Department of Prime Minister and Cabinet. Accessed on 2 March 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-16829.

Rudd, Kevin M. 2010b. "Prime Minister Transcript of interview with Kerry O'Brien The 7.30 Report 12 May 2010." In *PM Transcripts: Transcripts from the Prime Ministers of Australia*, 12 May 2010. Canberra: Department of Prime Minister and Cabinet. Accessed on 4 March 2014, https://pmtranscripts.dpmc.gov.au/release/transcript-17292.

Ruedin, Didier. 2013. "The Role of Language in the Automatic Coding of Political Texts." *Swiss Political Science Review*, vol. 19, no. 4:539 - 545. doi: 10.1111/spsr.12050.

Ruggie, John Gerard. 1982. "International regimes, transactions, and change: embedded liberalism in the postwar economic order." *International Organization*, vol. 36, no. 2:379 - 415. doi: 10.1017/S0020818300018993.

Rumsfeld, Donald H. 2003. "FY2004 Defense Budget Testimony (As Prepared)." In *Transcripts of the Secretary of Defense*, 5 February 2003. Washington, DC: Department of Defense. Accessed on 4 March 2013, http://archive.defense.gov/Speeches/default.aspx?mo=2&yr=2003.

Sales, Leigh. 2013. "The toxic political debate of climate change." Canberra: Australian Broadcasting Corporation. Accessed on 11 February 2014, http://www.abc.net.au/7.30/content/2013/s3831850.htm.

Scheffran, Jürgen. 1992. "Environmental Applications of Military Information and Communication Technologies." In *Conversion: Opportunities for Development and Environment*, edited by Anke Brunn, Lutz Baehr and Hans-Jurgen Karpe, pp. 122 - 133. Heidelberg: Springer.

Scheffran, Jürgen. 2011. "Security Risks of Climate Change: Vulnerabilities, Threats, Conflicts and Strategies." In *Coping with Global Environmental Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*, edited by Hans Gunter Brauch,

Ursula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Bechir Chourou, Pal Dunay and Jorn Birkmann, vol. 5, pp. 735 - 756. Berlin: Springer-Verlag.

Schubert, Renate, Hans Joachim Schellnhuber, Nina Buchmann, Astrid Epiney, Rainer Grießhammer, Margareta E. Kulessa, Dirk Messner, Stefan Rahmstorf, and Jürgen Schmid. 2008. *Climate Change as a Security Risk*. Berlin: Earthscan. Accessed on 12 May 2014, http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2007 /wbgu_jg2007_engl.pdf.

Schwartz, Peter, and Doug Randall. 2003. *An Abrupt Climate Change Scenario and Its Implications for United States National Security*. Washington, DC: Department of Defense. Accessed on 23 October 2010, http://stephenschneider.stanford.edu/Publications/PDF_Papers/SchwartzRandall2004.pdf.

Scott, Steven, and Sarah Vogler. 2014. "G20 Brisbane: Tony Abbott clashes with Barack Obama over Climate Change." *The Courier Mail*, News Corp, 17 November 2014. Accessed on 10 March 2015, http://www.couriermail.com.au/news/queensland/g20-brisbane-tony-abbott-clashes-with-barack-obama-over-climate-change/story-fnmd7bxx-1227125019686.

Shanahan, Rodger. 2013. "Editorial." *Australian Army Journal for The Profession of Arms*, vol. 10, no. 4:5 - 7.

Sindico, Francesco. 2007. "Climate Change: A Security (Council) Issue? ." *Carbon and Climate Law Review*, vol. 1, no.:26 - 31.

Skjærseth, Jon Birger, Guri Bang, and Miranda A. Schreurs. 2013. "Explaining Growing Climate Policy Differences Between the European Union and the United States." *Global Environmental Politics*, vol. 13, no. 4:61 - 80. doi: 10.1162/GLEP_a_00198.

Slaughter, Anne-Marie, Troy Sternberg, Sarah Johnstone, Jeffrey Mazo, Francesco Femia, Caitlin Werrell, Michael Werz, Max Hoffman, David Michel, and Mona Yacoubian. 2013. *The Arab Spring and Climate Change*. A Climate and Security Correlations Series: Washington, DC: The Center for American Progress.

Smith, Rupert. 2008. *The Utility of Force: The Art of War in the Modern World*. United States: Alfred A. Knopf.

Smith, Stephen. 2012. "Minister for Defence and Minister for Defence Materiel – Joint Media Release – Ocean Shield arrives in Australia." In *Transcripts of the Minister for Defence* 30 June 2012. Canberra: Department of Defence. Accessed on 12 March 2014, http://www.minister.defence.gov.au/2012/06/30/minister-for-defence-and-minister-for-defence-materiel-joint-media-release-ocean-shield-arrives-in-australia/.

Snowden, Warren. 2008. "Australia's Strategic Impreatives Presented tothe ASPI Global Forces Conference." In *Defence Minister: Ministerial Releases*, 2 July 2008. Canberra: Department of Defence. Accessed on 3 March 2014, http://www.defence.gov.au/minister/minreleases.cfm?UseMonth=7&UseYear=2008.

Spencer, Tom, Nick Mabey, Chad Briggs, Elena Belluci, and Geraud de Ville. 2009. *Climate Change & The Military: The State of the Debate*. Institute for Environmental Security Military Advisory Council: Belgium: Institute for Environmental Security. Accessed on 4 April 2013, http://www.tomspencer.info/articles/StateoftheDebate.pdf.

Spratt, David. 2012. "Scientists call for war on climate change, but who on earth is listening." Published online: Climate Code Red. Accessed on 6 October 2015, http://www.climatecodered.org/2012/12/scientists-call-for-war-on-climate.html.

Steffen, Will, Andrew A. Burbidge, Lesley Hughes, Roger Kitching, David Lindenmayer, Warren Musgrave, Mark Stafford Smith, and Patricia A. Werner. 2009. *Australia's Biodiversity and Climate Change: A Strategic Assessment of the vulnerability of Australia's biodiversity to climate change*. Canberra: Commonwealth of Australia. http://www.environment.gov.au/system/files/resources/eab369d6-76f9-46c8-beb4-aaae8ece112e/files/biodiversity-vulnerability-assessment.pdf.

Steffen, Will, Paul J. Crutzen, and John R. McNeill. 2007. "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature." *Ambio: A Journal of the Human Environment*, vol. 36, no. 8:614 - 621. doi: 10.1579/0044-7447(2007)36[614:TAAHNO]2.0.CO;2.

Steffen, Will, and Lesley Hughes. 2011. *The Critical Decade: Climate Science, Risks and Responses*. Canberra: Commonwealth of Australia. Accessed on 13 March 2014, http://www.climatecouncil.org.au/uploads/b7e53b20a7d6573e1ab269d36bb9b07c.pdf.

Steffen, Will, John Hunter, and Lesley Hughes. 2014. *Counting the Coast: Climate Change and Coastal Flooding*. Sydney: Climate Council. Accessed on 5 April 2014, http://www.climatecouncil.org.au/uploads/56812f1261b168e02032126342619dad.pdf.

Stein, Arthur A. 2009. "Neoliberal Institutionalism." In *The Oxford Handbook of International Relations*, edited by Christian Reus-Smit and Duncan Snidal. Oxford: Oxford University Press. Accessed on 10 March 2015, http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199219322.001.0001/oxfordhb-9780199219322-e-11.

Stern, Nicholas. 2007. *Stern Review on the Economics of Climate Change*. Cambridge: Cambridge University Press.

Stritzel, Holger. 2007. "Towards a Theory of Securitization: Copenhagen and Beyond." *European Journal of International Relations*, vol. 13, no. 3:357-383.

Sturrock, Robert, and Peter Ferguson. 2015. *The Longest Conflict: Australia's Climate Security Challenge*. Melbourne: Centre for Policy Development.

Szasz, Andrew. 2016. "Novel Framings Create New, Unexpected Allies for Climate Action." In *Reframing Climate Change: Constructing Ecological Geopolitics*, edited by Shannon O'Lear and Simon Dalby, pp. 150 - 170. London: Routledge.

Tans, Pieter, and Ralph Keeling. 2015. "Atmospheric CO_2 at Mauna Loa Observatory." Earth System Research Laboratory: National Oceanic and Atmospheric Administration. Accessed on 14 July 2015, http://www.esrl.noaa.gov/gmd/ccgg/trends/.

Tanzler, Dennis, Alexander Carius, and Sebastian Oberthur. 2002. *Climate Change and Conflict: Can Climate Impacts Increase Conflict Potentials? What is the Relevance of this Issue for the International Process on Climate Change?* Nature Conservation and Nuclear Safety Federal Ministry for the Environment. Berlin: Federal Ministry for the Environment,

Nature Conservation and Nuclear Safety. Accessed on 10 February 2013, http://www.afes-press.de/pdf/Brauch_ClimateChange_BMU.pdf.

Tauberer, Josh. 2015. "H.R. 1961 (100th): Global Climate Change Security Oversight Act." Published online: Civic Impulse, LLC. Accessed on 10 November 2015, https://www.govtrack.us/congress/bills/110/hr1961.

Terreu, Julia. 2014. "Can the Australian Military Think Out Loud? ." In *The Diplomat*, edited by James Pach, 1 April 2014. Toyko: Trans-Asia Inc. Accessed on 12 March 2015, http://thediplomat.com/2014/04/can-the-australian-military-think-out-loud/.

The New Daily. 2014. "Runaway climate debate keeps Abbott hopping." In *The New Daily*, 16 November 2014. Published online: The New Daily Pty. Ltd. Accessed on 12 January 2015, http://thenewdaily.com.au/news/2014/11/16/climate-debate-tony-abbott-g20/.

Thomas, Michael. 2011. "Climate Change and the ADF." *Journal of the Australian Profession of Arms*, no. 185:34 - 43.

Thomas, Michael. 2013. "The Securitisation of Climate Change: A Military Perspective." *Journal of the Australian Profession of Arms* vol. Nov/Dec, no. 192:7 - 18.

Thomas, Michael. 2015a. "Climate securitization in the Australian political-military establishment." *Global Change Peace and Security*, vol. 27, no. 1:97 - 118. doi: 10.1080/14781158.2015.990879.

Thomas, Michael. 2015b. "Political warfare on climate change could leave national security at risk." In *The Conversation*, edited by Andrew Jaspan, 24 June 2015. Published online: The Conversation Media Group. Accessed on 3 July 2015, https://theconversation.com/political-warfare-on-climate-could-leave-national-security-at-risk-43695.

Thomas, Nicholas, and William T. Tow. 2002. "The Utility of Human Security: Sovereignty and Humanitarian Intervention." *Security Dialogue*, vol. 33, no. 2:177 - 192. doi: 10.1177/0967010602033002006.

Thomson, Mark. 2013. *The Cost of Defence: ASPI Defence Budget Brief 2013-14*. Canberra: Australian Strategic Policy Institute. Accessed on 15 May 2014, https://www.aspi.org.au/publications/the-cost-of-defence-aspi-defence-budget-brief-2013-2014/ASPI-CostDefence2013.pdf.

Titley, David. 2015. "The Australian Climate Security Summit." Canberra. Personal communicaton. 29 October 2015.

Titley, David W. 2010a. "Climate Change Finance: Providing assistance for vulnerable countries." In *Hearing Before the Subcommittee on Asia, the Pacific and the Global Environment of the Committee on Foreign Affairs House of Representatives One Hundred Eleventh Congress Second Session*, 111th Congress, Serial No. 111 - 120, 27 July 2010. Washington, DC: US Government Printing Office. http://www.gpo.gov/fdsys/pkg/CHRG-111hhrg57687/html/CHRG-111hhrg57687.htm.

Titley, David W. 2010b. "Climate Change Investments in a Fiscally Restrained Environment Time." In *Department of Defense Bloggers Roundtable*, edited by John Ohab, 18 June 2010.

Washington, DC: Federal News Service. Accessed on 10 May 2013, http://www.dodlive.mil/files/2010/06/0618_Rear-Adm_Titley.pdf.

Titley, David W. 2010c. "Global Climate Change." Climate and Energy Symposium 2010: Proceedings on Climate and Energy, Imperatives for Future Naval Forces, Baltimore. Accessed on 18 October 2012, http://www.jhuapl.edu/ClimateAndEnergy/Book/2010CEBook.pdf

Titley, David W. 2010d. "A Rational Discussion of Climate Change: The Science, the Evidence, the Response." In *Hearing before the Sub Committee on Energy and Environment Committee on Science and Technology House of Representatives One Hundred Eleventh Congress Second Session*, 111th Congress, Serial No. 111 - 114, 17 November 2010. Washington, DC: US Government Printing Office. Accessed on 10 April 2013, http://www.gpo.gov/fdsys/pkg/CHRG-111hhrg62618/pdf/CHRG-111hhrg62618.pdf.

Townsend, Mark, and Paul Harris. 2004. "Now the Pentagon tell Bush: climate change will destroy us." *The Observer*, Guardian News Accessed on 2 February 2013, http://www.guardian.co.uk/environment/2004/feb/22/usnews.theobserver.

Tremblay, Pascal, Anna Boustead, Stephen Turton, Robyn Wilson, Tracey Dickson, Bruce Hayllar, Rosallie Chapple, Sue Uzabeaga, Kate Hammill, Beatrice Pegard, Mario Rimini, Phoenix Lawhon Isler, John Merson, Bradley Jorgensen, Maureen Rogers, Peter Hayman, Graham Brown, Jenny Davies, Amanda Lynch, Carolina Roman, Lee Tryhorn, Tien Duc Pham, Peter Forsyth, and Ray Spurr. 2008. *The Impact of Climate Change on Australian Tourism Destinations*. Published online: Commonwealth of Australia. Accessed on 10 October 2015, http://www.bmwhi.org.au/docs/The%20Impacts%20of%20Climate%20Change%20Summary.pdf.

Trenberth, Kevin E., J. T. Fasullo, and J. Kiehl. 2009. "Earth's Global Energy Budget." *Bulletin of American Meteorlogical Society*, vol. 90, no. 3:311 - 3 24. doi: 10.1175/2008BAMS2634.1.

Trombetta, Maria J. 2012. "Climate Change and the Environmental Conflict Discourse." In *Climate Change, Human Security and Voilent Conflict: Challenges for Societal Stability*, edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link and Janpeter Schilling, vol. 8, pp. 151 - 164. Berlin: Springer.

Trombetta, Maria Julia. 2008. "Environmental Security and Climate Change: Analysing the discourse." *Cambridge Review of International Affairs*, vol. 21, no. 4:585 - 602. doi: 10.1080/09557570802452920.

UK MoD. 2010a. *MOD Climate Change Delivery Plan*. Ministry of Defence. London: Ministry of Defence. Accessed on 10 April 2014, https://www.gov.uk/government/publications/mods-climate-change-strategy. (Document archived, see website. In possession of author).

UK MoD. 2010b. *MoD Climate Change Strategy 2010*. Ministry of Defence. London: Ministry of Defence UK. Accessed on 10 April 2014, https://www.gov.uk/government/publications/mods-climate-change-strategy. (Document archived, see website. In possession of author).

Ullman, Richard H. 1983. "Redefining Security." *International Security*, vol. 8, no. 1:129 - 153. doi: 10.2307/2538489.

UN. 1982. "World Charter for Nature." In *United Nations General Assembly Resolution 37/7*, edited by United Nations, A/RES/37/7 48th plenary meeting, 28 October 1982. New York: United Nations. Accessed on 7 June 2014, http://www.un.org/documents/ga/res/37/a37r007.htm.

UN. 1988. "Our Common Future: Report of the World Commission on Environment and Development." In *Secretary General A/42/427 - Development and International Co-operation: Environment*, 4 August 1987. New York: United Nations. Accessed on 10 May 2013, http://www.un-documents.net/a42-427.htm.

UN. 1993. *Charting Potential Uses of Resources Allocated to Military Activities for Civilian Eneavours to Protect the Environment*. Report to the UN Department for Disarmament Affairs: New York: United Nations. Accessed on 10 June 2014, http://www.un.org/disarmament/HomePage/ODAPublications/DisarmamentStudySeries/PDF/SS-25.pdf.

UN Secretary-General. 2009. "Report of the Secretary-General: Climate change and its possible security implications (A/64/350)." In *United Nations General Assembly 64th session*, Item 114, A/64/350, 11 September 2009. New York: United Nations. Accessed on 12 May 2013, http://www.un.org/ga/search/view_doc.asp?symbol=A/64/350.

UNFCCC. 1997. *Kyoto Protocol to the United Nations Framework Convention on Climate Change*. Kyoto: United Nations. Accessed on 12 June 2013, http://unfccc.int/essential_background/kyoto_protocol/items/1678.php.

UNFCCC. 2002. "U.S. Submission Issues Relating to HFCs, PFCs, and SF_6." In *Relationship between efforts to protect the stratospheric ozone layer and efforts to safeguard the global climate system: Issues relating to hydrofluorocarbons and perfluorocarbons*, Subsidiary Body for Scientific and Technological Advice 16th session, 27 March 2002. Bonn: United Nations. Accessed on 7 March 2013, http://unfccc.int/resource/docs/2002/sbsta/misc06.pdf.

UNFCCC. 2012. "Kyoto Protocol: Doha Amendment." New York: United Nations. Accessed on 6 February 2013, http://unfccc.int/kyoto_protocol/items/2830.php.

UNGA. 2008. "Battle against climate change calls for 'war footing', Deputy Secretary-general says as General Assembly holds follow-up to February thematic debate." In *General Assembly Plenary Press Release*, GA/10725, 8 July 2008. New York: United Nations. Accessed on 6 October 2015, http://www.un.org/press/en/2008/ga10725.doc.htm.

UNGA. 2009. "Resolution 63/281: Climate change and its possible security implications." In *United Nations General Assembly 63rd Session* Agenda item 107, A/RES/63/291, 11 June 2009. New York: United Nations. Accessed on 28 January 2013, http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/res%2063%20281.pdf.

UNSC. 2007. "Letter dated 5 April 2007 from the Permanent Representative of the United Kingdom of Great Britain and Northern Ireland to the United Nations addressed to the President of the Security Council (S/2007/186)." In *United Nations Security Council 5663rd*

Meeting, S/PV.5663, 17 April 2007. New York: United Nations. Accessed on 10 April 2013, http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/Ener%20SPV%205663.pdf.

UNSC. 2011a. "Maintenance of international peace and security: Impact of climate change." In *United Nations Security Council 6587th meeting*, S/PV.6587, 20 July 2011. New York: United Nations. Accessed on 5 June 2012, http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/CC%20SPV%206587%20RES1.pdf, and at: http://www.unmultimedia.org/tv/webcast/2011/07/climate-change-security-council-meeting-part-1.html.

UNSC. 2011b. "Security Council, in Statement, Says 'Contextual Information' on Possible Security Implications of Climate Change Important When Climate Impacts Drive Conflict." In *United Nations Security Council Press Releases* SC/10332, 20 July 2011. New York: United Nations. Accessed on 3 September 2014, http://www.un.org/News/Press/docs/2011/sc10332.doc.htm.

US ARMY. 2008. *Field Manual: 3-07 Stability Operations*, *US Army Field Manual*. Washington, DC: Department of the Army.

US Congress. 2008. "National Intelligence Assessment on the National Security Implications of Global Climate Change." In *Joint Hearing Before the Select Committee on Energy Independence and Global Warming and Subcommittee on Intelligence, Community Management, Permanent Select Committee on Intelligence House of Representatives*, 110th Congress, Serial No. 110-41, 25 June 2008. Washington, DC: US Government Printing Office. Accessed on 1 September 2013, https://www.fas.org/irp/congress/2008_hr/climate.pdf.

US DoD. 2005. *The National Defense Strategy of the United States of America*. Washington, DC: Department of Defense. Accessed on 6 August 2013, http://www.au.af.mil/au/awc/awcgate/nds/nds2005.pdf.

US DoD. 2006. *Quadrennial Defense Review Report*. Washington, DC: Department of Defense. Accessed on 18 August 2013, http://archive.defense.gov/pubs/pdfs/QDR20060203.pdf.

US DoD. 2008. *National Defense Strategy*. Washington, DC: Department of Defense. Accessed on 2 May 2013, http://www.defense.gov/Portals/1/Documents/pubs/2008NationalDefenseStrategy.pdf.

US DoD. 2010. *Quadrennial Defense Review*. Washington, DC: Department of Defense. Accessed on 6 March 2012, https://acc.dau.mil/adl/en-US/341273/file/48799/Quadrennial%20Defense%20Review%20-%20February%202010.pdf.

US DoD. 2011. *The National Military Strategy of the United States of America 2011: Redefining America's Military Leadership*. Washington, DC: Department of Defense. Accessed on 5 March 2013, http://www.defense.gov/Portals/1/Documents/pubs/2011-National-Military-Strategy.pdf.

US DoD. 2012. "Department of Defense FY-2012 Climate Change Adaptation Roadmap." In *Department of Defense Strategic Sustainability Performance Plan FY-2012*. Washington, DC: Department of Defence. Accessed on 6 March 2015, http://www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY14-FINAL-w_CCAR.pdf. (FY-2012 SSPP document archived. Document in possession of author. See FY-2014 SSPP weblink herein for nearest version).

US DoD. 2013a. *Department of Defense Strategic Sustainability Performance Plan FY-2013*. Washington, DC: Department of Defense. Accessed on 5 March 2014, http://www.denix.osd.mil/sustainability/loader.cfm?csModule=security/getfile&pageid=35931

US DoD. 2013b. *National Defense Budget Estimates for FY-2014*. Washington, DC: Office of the Under Secretary of Defense. Accessed on 10 May 2015, http://comptroller.defense.gov/defbudget/fy2014/FY14_Green_Book.pdf.

US DoD. 2014a. *Department of Defense Strategic Sustainability Performance Plan FY 2014*. Defense. Alexandria: Office of the Deputy Secretary of Defense for Installations and Environment.

US DoD. 2014b. *Quadrennial Defense Review 2014*. Washington, DC: Department of Defense. Accessed on 25 May 2015, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

US DoD. 2015a. "DOD 101 Introductory Overview of the Department of Defense." Published online: Department of Defense. Accessed on 5 November 2015, http://www.defense.gov/About-DoD/DoD-101#How%20We're%20Organized.

US DoD. 2015b. *National Security Implications of Climate-Related Risks and a Changing Climate*. US DoD. Washington, DC: US Government. Accessed on 11 February 2016, http://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf?source=govdelivery.

US DoD. 2016. *DoD Directive 4715.21: Climate Change Adaptation and Resilience*. US DoD. Washington, DC: Office of the Under Secretary of Defence for Acquisition, Technology, and Logistics. Accessed on 11 February 2016, http://www.dtic.mil/whs/directives/corres/pdf/471521p.pdf.

US GAO. 2015. "Limiting the Federal Government's Fiscal Exposure by Better Managing Climate Change Risks." Washington DC: US Government Accountability Office. Accessed on 23 July 2015, http://www.gao.gov/highrisk/limiting_federal_government_fiscal_exposure/why_did_study#t=1.

US House of Representatives. 2006. "Department of Energy's Plan for Climate Change Technology Programs." In *Hearing Before the Subcommittee on Energy and Committee on Science*, 109th Congress, Second session, Serial No. 109-62, 20 September 2006. Washington, DC: US Government Printing Office. Accessed on 16 March 2013, http://www.gpo.gov/fdsys/pkg/CHRG-109hhrg29851/html/CHRG-109hhrg29851.htm.

US House of Representatives. 2007. "The National Security Implications of Climate Change." In *Hearing Before the Subcommittee on Investigations and Oversight Committee on Science and Technology*, 110th Congress, First session, Serial No. 110-58, 27 September 2007. Washington, DC: US Government Printing Office. Accessed on 16 March 2013, http://www.gpo.gov/fdsys/pkg/CHRG-110hhrg34720/pdf/CHRG-110hhrg34720.pdf.

US House of Representatives. 2008. "National Security Implications of Global Climate Change." In *Joint Hearing before the Select Committee on Energy Independence and Global Warming and Subcommittee on Intelligence, Community Management, Permanent Select Committee on Intelligence*, 110th Congress, Second session, Serial No. 110-41, 25 June 2008. Washington, DC: US Government Printing Office. Accessed on 6 March 2014, http://www.gpo.gov/fdsys/pkg/CHRG-110hhrg62523/html/CHRG-110hhrg62523.htm.

US House of Representatives. 2013. "President Obama's Fiscal 2014 Budget Proposal for the U.S. Navy and Marine Corps " In *House Appropriations Subcommittee on Defense Hearing*, 7 May 2013. Washington, DC: US Government Printing Office. Accessed on 6 March 2014, http://www.navy.mil/navydata/people/cno/Greenert/Testimony/130507%20HACD%20Hearing%20on%202014%20Navy%20and%20Marine%20Corps%20Budget.pdf.

US Navy. 2007. *A Cooperative Strategy for 21st Century Seapower*. Washington, DC: US Navy. Accessed on 12 May 2013, http://www.navy.mil/maritime/maritimestrategy.pdf.

US Navy. 2009a. *Task Force Climate Change Charter*. Washington, DC: US Navy. Accessed on 6 March 2013, http://greenfleet.dodlive.mil/files/2010/09/Task-Force-Climate-Change-Charter.pdf.

US Navy. 2009b. *US Navy Arctic Roadmap*. Washington, DC: US Navy. Accessed on 3 August 2013, http://www.navy.mil/navydata/documents/USN_artic_roadmap.pdf.

US Navy. 2010a. *Energy Program for Security and Independence*. Washington, DC: US Navy. Accessed on 6 August 2013, http://greenfleet.dodlive.mil/files/2010/04/Naval_Energy_Strategic_Roadmap_100710.pdf.

US Navy. 2010b. *Navy Climate Change Roadmap*. Washington, DC: US Navy. Accessed on 6 March 2012, http://www.navy.mil/navydata/documents/CCR.pdf.

US Navy. 2010c. *A Navy Energy Vision for the 21st Century*. Washington, DC: US Navy. Accessed on 6 March 2013, http://greenfleet.dodlive.mil/files/2010/10/Navy-Energy-Vision-Oct-2010.pdf.

US Navy. 2011. *Arctic Environmental Assessment and Outlook Report In support of The Navy Arctic Roadmap Action Item 5.7*. Washington, DC: US Navy. Accessed on 7 June 2013, http://greenfleet.dodlive.mil/files/2011/08/U.S.-Navy-Arctic-Environmental-Assessment.pdf.

USACE. 2014. Adaption Policy Statement. In *USACE Climate Preparedness and Resilience Policy Statement*, edited by Jo-Ellen Darcy: US Army Corps of Engineers.

Vasquez, John A. 1999. *The Power of Power Politics: From Classical Realism to Neotraditionalism*. Cambridge: Cambridge University Press.

Victorian Government. 2011. *Review of the Climate Change Act 2010*. Department of Sustainability and Environment. Melbourne: Department of Premier and Cabinet. Accessed on 15 October 2015, http://www.climatechange.vic.gov.au/__data/assets/pdf_file/0006/280464/111010-Climate-Change-Review_online.pdf.

Waltz, Kenneth. 1979. *Theory of International Politics*. New York: McGraw Hill.

Waltz, Kenneth N. 1990. "Realist thought and neorealist theory." *Journal of International Affairs*, vol. 44, no. 1:21 - 37.

Watt, David. 2012. "Budget 2011–12: Australian Defence Force (ADF) operations." In *Parliamentary Library Research Publications, Australian Defence Force (ADF) Operations*. Canberra: Commonwealth of Australia. Accessed on 10 May 2013, http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/BudgetReview201112/ADF.

Watts, Jonathon, and John Vidal. 2009. "China blamed as anger mounts over climate deal." *The Guardian*, The Guardian, 20 December 2009. Accessed on 5 June 2014, http://www.theguardian.com/environment/2009/dec/20/china-blamed-copenhagen-climate-failure?guni=Article:in%20body%20link.

Weart, Spencer R. 2008. *The Discovery of Global Warming*. Second ed. Cambridge: Harvard University Press.

Werrell, Caitlin, and Francesco Femia. 2014. "Must Watch: PACOM Commander on the Climate Change Threat to the Asia-Pacific." Online: The Center for Climate and Security. Accessed on 10 October 2015, http://climateandsecurity.org/2014/03/07/must-watch-pacom-commander-on-the-climate-change-threat-to-the-asia-pacific/.

Wesley, Michael. 2012. "Climate views have moved on." *The Australian*, Lowy Institute for International Policy, 2 July 2012. Accessed on 23 March 2013, http://www.lowyinstitute.org/publications/climate-views-have-moved.

Westing, Arthur H. 2013. *From Environmental to Comprehensive Security*. Edited by Hans Gunther Brauch. Vol. 13, *Springer Briefs on Pioneers in Science and Practice*. London: Springer.

White, Ben. 2010. "Sustainable Defence Capability: Australia's national security and the role of defence industry." *Journal of the Australian Profession of Arms*, no. 183:87 - 96.

White House. 2002. *The National Security Strategy of the United States of America* White House. Washington, DC: Government of the United States of America. Accessed on 4 June 2013, http://www.state.gov/documents/organization/63562.pdf.

White House. 2006. *The National Security Strategy of the United States of America*. White House. Washington, DC: Government of the United States of America. Accessed on 15 September 2013, http://georgewbush-whitehouse.archives.gov/nsc/nss/2006/index.html.

White House. 2009. "Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance." Washington, DC: Office of the Federal Register, National

Archives and Records Administration. Accessed on 13 September 2013, http://www.gpo.gov/fdsys/granule/FR-2009-10-08/E9-24518/content-detail.html.

White House. 2010. *The National Security Strategy of the United States of America*. White House. Washington, DC: Government of the United States of America. Accessed on 15 September 2013, http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf.

White House. 2013. "Executive Order - Preparing the United States for the Impacts of Climate Change." Washington, DC.: White House. Accessed on 21 July 2015, https://www.whitehouse.gov/the-press-office/2013/11/01/executive-order-preparing-united-states-impacts-climate-change.

White House. 2015. *National Security Strategy*. Washington, DC: Government of the United States of America. Accessed on 26 May 2013, https://www.whitehouse.gov/sites/default/files/docs/2015_national_security_strategy.pdf.

White, Martin. 2008. "The Compelling Requirement to Energy-Proof the Australian Defence Force." *Journal of the Australian Profession of Arms*, no. 175:12 - 21.

Wiharta, Sharon, Hassan Ahmad, Jean-Yves Haine, Josefina Lofgren, and Tim Randall. 2008. *The Effectiveness of Foreign Military Assets in Natural Disaster Response*. Sweden. Accessed on 4 April 2014, http://reliefweb.int/sites/reliefweb.int/files/resources/236476AD3257088DC125741000474F20-sipri_mar2008.pdf.

Wilkinson, Claire. 2007. "The Copenhagen School on Tour in Kyrgyzstan: Is Securitization Theory Useable Outside Europe?" *Security Dialogue*, vol. 38, no. 1:5-25.

Williams, Richard J., Ross A. Bradstock, Geoffrey J. Cary, Neal J. Enright, A. Malcolm Gill, Adam C. Liedloff, Christopher J. Whelan, Alan N. Andersen, David J. M. S. Bowman, Peter J. Clarke, Garry D. Cook, Kevin J. Hennessy, and Alan York. 2009. *Interactions between climate change, fire regimes and biodiversity in Australia: A Preliminary Assessment*. Water Department of Climate Change and Department of the Environment, Heritage and the Arts. Canberra: Commonwealth of Australia. Accessed on 5 October 2014, http://www.environment.gov.au/system/files/resources/ab711274-004c-46cb-a9f1-09dba68d98c3/files/20100630-climate-fire-biodiversity-pdf.pdf.

Wing, Ian. 2000. *Refocusing Concepts of Security: The convergence of military and non-military tasks*. Land Warfare Studies Centre Woking Paper No. 111: 111. Canberra: Land Warfare Studies Centre. Accessed on 14 June 2015, http://www.army.gov.au/Our-future/LWSC/Our-publications/Working-Papers/~/media/Files/Our%20future/LWSC%20Publications/WP/pdfs/wp111-Refocusing%20Concepts%20of%20Security_Ian%20Wing.pdf.

WMO. 1988. "The Changing Atmosphere: Implications for Global Security." In *Toronto Conference on the Changing Atmosphere*, Series No. 710, pp. 292 - 304. Toronto: Secretariat of the World Meteorological Organization.

Wolfers, Arnold. 1952. "'National Security' as an Ambiguous Symbol." *Political Science Quarterly*, vol. 67, no. 4:481 - 502.

Woodward, Peter. 2011. "The Reserve Response Force and Public Safety." *Australian Army Journal For The Profession of Arms*, vol. 8, no. 3:101 - 120.

World Bank. 2013. *Turn Down the Heat: Climate Extremes, Regional Impacts and the Case for Resilience*. Washington, DC: World Bank. Accessed on 4 April 2014, http://www.worldbank.org/content/dam/Worldbank/document/Full_Report_Vol_2_Turn_Down_The_Heat_%20Climate_Extremes_Regional_Impacts_Case_for_Resilience_Print%20version_FINAL.pdf.

World Vision. 2015. "Climate change: The effects on children." Published online: World Vision. Accessed on 23 September 2015, http://www.worldvision.com.au/global-issues/work-we-do/climate-change/climate-change-the-effects-on-children.

Yin, Robert K. 2012. *Applications of Case Study Research*. Third ed. Los Angeles: Sage.

Zhang, Chun. 2009. "Regional Reactions to the Defence White Paper 2009: Rebuilding middle power leadership for Australia " *Australian Defence Force Journal: Journal of the Australian Profession of Arms*, no. 180:7 - 9.