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WORDS AND ACTION:

ASSESSING WESTERN MILITARY APPROACHES TO THE SECURITY IMPLICATIONS  
OF CLIMATE CHANGE

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by

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### **ABSTRACT**

Using military strategy documents, reports, and public statements this paper describes how a sample of Western countries have addressed, both in words and actions, the issue of climate and security. While climate and security issues are conspicuously absent from current United States guiding strategy documents, the United States military continues to take substantive actions that demonstrate the country's position at the forefront of climate and security – especially in the area of military readiness. Australia, Canada, and the United Kingdom's actions lag behind their rhetoric, while New Zealand's words and actions are commensurate. While all efforts fall short of experts' recommendation, this work illustrates that neither effusive rhetoric nor conspicuous silence are necessarily predictive of action to address climate change's security implications.

## INTRODUCTION

In the course of the past two decades, climate change's national security impacts have evolved from a futurist's concern to a widely accepted matter of international security. As the field has developed in both academic and policy circles, the implications of a changing climate have been elevated to leading international security bodies like the United Nations Security Council (UNSC), forums such as the Munich Security Conference, and the chief strategy documents of numerous nations.<sup>1</sup>

Significant efforts have been undertaken to understand how climate change impacts the security environment (these are more fully overviewed in Section II). However, national responses to the rapidly developing climate and security (C&S) field have varied widely both between countries and within countries over time. While some attempts have been made at country level comparisons of C&S response – see for instance the American Security Project's 2014 Global Climate Security Index<sup>2</sup> – this facet of C&S studies remains relatively understudied. By examining, comparing, and analyzing the attention America and its allies have focused on C&S – particularly the rhetoric surrounding the topic and the actions taken to address C&S problems – security experts, researchers, and policymakers may be better prepared to:

- Benchmark domestic efforts *vis-à-vis* those of close partners
- Identify weaknesses and strengths in C&S responses
- Enhance communication clarity between allies by clarifying or mitigating nomenclature variance

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<sup>1</sup> Munich Security Conference, "Munich Security Report 2020," accessed April 14, 2020, <https://securityconference.org/en/publications/munich-security-report-2020/>; "Climate Change Recognized as 'Threat Multiplier', UN Security Council Debates Its Impact on Peace," *United Nations News*, January 25, 2019, sec. Climate Change, <https://news.un.org/en/story/2019/01/1031322>.

<sup>2</sup> American Security Project, "The Global Security Defense Index on Climate Change," 2014, <https://www.americansecurityproject.org/climate-energy-and-security/climate-change/gsdicc/>.

- Recognize allies' superior best practices and adopt where applicable
  - Including climate change risk assessment methodologies, terminology, etc.

To realize the first of these benefits, this paper compares the military responses to C&S of the United States (US), the United Kingdom (UK), Canada (CAN), Australia (AU), and New Zealand (NZ). This analysis seeks to understand the rhetoric that these countries use to discuss C&S issues, how prominently C&S figures in key strategy documents, and the extents to which tangible policies addressing C&S have been implemented. This paper examines both words and actions surrounding C&S by the US military and some of its closest partners. To develop a picture of these words and actions, textual analysis was conducted on strategy documents, reports, and statements from the aforementioned five countries.

The key result of the analysis is that while climate and security issues are conspicuously absent from the guiding strategy documents of the Trump Administration, the US military continues to take substantive actions that demonstrate the country's position at the forefront of climate and security issues – especially those related to force readiness. The US's thought leadership can be seen in the extent to which allies have adopted US C&S terminology and in cases where US C&S documents are mirrored by allies.

The other countries examined have engaged with C&S to various degrees. Australia has adopted a C&S approach that blends emphasis on climate's impacts on military readiness and its potential to foment instability. Notably, however, the tangible actions taken by Australia lag behind the US. Canada engages effusively with C&S, but to date the emphasis has largely been on how a changing climate may exacerbate existing precarity. Canada has also taken steps to enhance its military capability in the Arctic. The United Kingdom has established methods for assessing climate risk, contributes to long-term thought about C&S implication, and engages

rhetorically with C&S. Efforts are currently underway that would signify greater action on C&S by the British military. New Zealand has made substantial efforts adopting C&S as a critical component of defense – going so far as to initiate a 14.5% expansion of its standing force strength in anticipation of likely future C&S related operations. New Zealand alone has achieved equivalence of words and actions on C&S.

Despite US leadership in the C&S field, it is important for US military leaders, policymakers, and C&S experts to recognize strengths exhibited in international approaches. In particular the adoption of ‘burden multiplier’ as a term for denoting the readiness implication of climate change would enhance clarity by providing an umbrella term parallel to ‘threat multiplier’. America must also ensure that the lack of high-level emphasis on C&S issues in leading strategy documents does not create a deficit of forward thought on long-term C&S potentials like geopolitical tension resulting from geoengineering or state fragility due to large-scale climate migration.

The analysis from which these initial insights are drawn is organized as follows: the next section details the field of C&S, providing an overview of the key impacts and terminology while also developing a picture of the development of the field itself; the second section also engages with the differences between the academic and policy literature on C&S. The third section explains the methodology used in the present analysis. The fourth section characterizes the rhetoric used to talk about C&S by each of the countries. The fifth section summarizes the principle actions taken on C&S issues. The sixth section provides a discussion of the findings and the seventh section concludes.

## STATE OF THE FIELD

This section explores the extant literature on climate and security. First, however, it is worthwhile to briefly discuss the current understanding of how climate change impacts national security. Changes to the climate, caused by release of carbon dioxide and other greenhouse gasses (GHG), are having myriad effects across the planet.<sup>3</sup> Global temperatures are rising, precipitation patterns are changing, sea levels are rising, and extreme weather events are becoming more frequent.<sup>4</sup> As climate change continues, these changes are expected to worsen.

Security thinkers have tended to consider climate change as a threat multiplier with implication for the future, but also as having impacts on the security environment right now.<sup>5</sup> Threat multipliers represent the avenues through which climate change will exacerbate existing precarity and make fragile or conflictual situations worse. For example, rising sea levels might increase flooding and hurricane vulnerability in low-lying cities to such a degree that some inhabitants might migrate. Or climate change induced drought might drive food insecurity which in turn could put overwhelming pressure on a country with weak governance – as some suggest was the case in the lead up to the Syrian Civil War.<sup>6</sup> Some researchers go so far as to suggest the possibility that the threat multiplier aspects of climate change could become severe enough that beyond simply compounding existing societal stresses, the impacts could push societies over critical thresholds leading to significant impacts potentially including war.<sup>7</sup> However, the

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<sup>3</sup> IPCC, “Sixth Assessment Report,” accessed April 14, 2020, <https://www.ipcc.ch/assessment-report/ar6/>.

<sup>4</sup> Ibid.

<sup>5</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, (Alexandria, VA: CNA Corporation, 2014); Department of Defense, *2014 Climate Change Adaptation Roadmap*, 2014, [https://www.acq.osd.mil/eie/downloads/CCARprint\\_wForward\\_e.pdf](https://www.acq.osd.mil/eie/downloads/CCARprint_wForward_e.pdf); Steve Brock et al., “The World Climate and Security Report 2020” (The Center for Climate and Security, February 2020), [https://climateandsecurity.files.wordpress.com/2020/02/world-climate-security-report-2020\\_2\\_13.pdf](https://climateandsecurity.files.wordpress.com/2020/02/world-climate-security-report-2020_2_13.pdf).

<sup>6</sup> Werrell Caitlin E, Femia Francesco ed. “The Arab Spring and Climate Change.” *The Center for Climate and Security*, 2013. Accessed April 14, 2020.

<https://climateandsecurity.files.wordpress.com/2017/12/climatechange-arab-spring-ccs-cap-stimson.pdf>.

<sup>7</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, 2.

dominant opinion, at present, is that threat multipliers are best understood as making existing problems worse.

Climate and security researchers also point to the readiness impacts of a changing climate. This category includes things like vulnerability of military installations to rising sea levels, loss of training time due to unsafe temperatures (black flag days), and increasing demand for militaries to conduct search and rescue or humanitarian assistance and disaster relief (HA/DR) operations. Some C&S researchers also suggest that a changing climate might have impacts on weapon systems and munitions which would further impact force readiness.<sup>8</sup> Unlike the case of threat multipliers there is no consensus on what this category of impacts should be called, with most US documents referring in general terms to C&S impacts on readiness. Lack of a concise and direct terminology for these readiness impacts can be addressed by the adoption of the term burden multiplier. Burden multipliers refers directly to those climate change factors that impact military readiness, bandwidth, and operational capacity and was chiefly delineated in Anthony Bergin and Zoe Glasson's submission to the Australian Senate inquiry into the Implications of Climate Change for Australia's National Security.<sup>9</sup> Burden multiplier is adopted in this paper, and together with threat multiplier, the terms serve as the principle categorizations of C&S issues.

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<sup>8</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, 23-26; Development, Concepts, and Doctrine Center, "Global Strategic Trends: The Future Starts Today" (Ministry of Defence, 2018), [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/771309/Global\\_Strategic\\_Trends\\_-\\_The\\_Future\\_Starts\\_Today.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/771309/Global_Strategic_Trends_-_The_Future_Starts_Today.pdf), 32; Peter Schwartzstein, "Climate Change May Be Blowing Up Arms Depots," *Scientific American*, November 14, 2019, sec. Climate, <https://www.scientificamerican.com/article/climate-change-may-be-blowing-up-arms-depots/>.

<sup>9</sup> Anthony Bergin and Zoe Glasson, "Implications of Climate Change for Australia's National Security Submission 3" (Parliament of Australia, May 2018), [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Foreign\\_Affairs\\_Defence\\_and\\_Trade/National\\_security/Submissions](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/National_security/Submissions).

Despite the breadth of impacts categorized as either threat or burden multiplies there remain some salient C&S impacts that do not fit cleanly into either category. The key example of this is the Arctic, where climate change prompts threat and burden multipliers, but also has broad strategic repercussions that defy simplistic categorization. Increasing global temperatures are reducing Arctic sea ice and the thawing of the Arctic will have myriad implications. As the extent of summer sea ice coverage decreases, as well as the age and thickness of the ice, the Arctic will increasingly draw both commercial and tourist vessels, indeed routes through the Arctic offer the potential to significantly reduce shipping times between East Asia and Europe.<sup>10</sup> However, the environment will remain austere and accidents, either commercial or tourist related, could require greater resources and capacity than could currently be marshalled with existing search and rescue capabilities in the region.<sup>11</sup> The changing environment also highlights the extensive resource deposits within the Arctic which could exacerbate tension between Arctic nations over boundaries, access, and extraction.<sup>12</sup> At a strategic level the thawing of the Arctic increases the importance of the region as a theatre of operation and competition. The prominence of Russia in the Arctic and China's determination to act as a 'near-Arctic' state make increasing access to, and activity in, the Arctic a central matter of concern for the US and its allies.<sup>13</sup>

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<sup>10</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, 17-19

<sup>11</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, 17-19

<sup>12</sup> Elizabeth Rosenberg, David Titley, and Alexander Wiker, "Arctic 2015 and Beyond A Strategy for U.S. Leadership in the High North" (Center for a New American Security, December 2014), [https://s3.amazonaws.com/files.cnas.org/documents/CNAS\\_ArcticHighNorth\\_policybrief\\_RosenbergTitleyWiker.pdf?mtime=20160906080459](https://s3.amazonaws.com/files.cnas.org/documents/CNAS_ArcticHighNorth_policybrief_RosenbergTitleyWiker.pdf?mtime=20160906080459), 2-3; CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, 19.

<sup>13</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, 3; Heather A Conley and Matthew Melino, "An Arctic Redesign: Recommendations to Rejuvenate the Arctic Council," *Center for Strategic & International Studies*, February 2016; Chief of Naval Operations, "Strategic Outlook for the Arctic" (United States Navy, January 2019), [https://www.navy.mil/strategic/Navy\\_Strategic\\_Outlook\\_Arctic\\_Jan2019.pdf](https://www.navy.mil/strategic/Navy_Strategic_Outlook_Arctic_Jan2019.pdf); United States Coast Guard, "Arctic Strategic Outlook," April 2019, [https://www.uscg.mil/Portals/0/Images/Arctic/Arctic\\_Strategic\\_Outlook\\_APR\\_2019.pdf](https://www.uscg.mil/Portals/0/Images/Arctic/Arctic_Strategic_Outlook_APR_2019.pdf); Department of Defense, "Report to Congress Department of Defense Arctic Strategy," June 2019, <https://media.defense.gov/2019/Jun/06/2002141657/-1/-1/1/2019-DOD-ARCTIC-STRATEGY.PDF>; Jack Durkee,

Looking further into the future there is also the potential that geoengineering – efforts to alter aspects of earth’s environment to mitigate the impacts of climate change – might create geopolitical issues and become a C&S impact that belies categorization as either a threat or burden multiplier. Some geoengineering efforts, such as the capture and sequestration of carbon seem unlikely to prompt dispute.<sup>14</sup> However, other potential avenues of geoengineering warrant greater concern. In particular a state might attempt to curtail warming temperatures by unilaterally undertaking stratospheric aerosol injection (SAI). This process seeks to replicate the cooling effects of a volcanic eruption by introducing particles into the stratosphere which reflect radiation from the sun.<sup>15</sup> Concern that SAI might disrupt weather patterns has led some, including former Central Intelligence Agency Director John Brennan, to note the potential geopolitical ramifications of geoengineering in a security context.<sup>16</sup>

The preceding description of C&S draws largely from how western militaries, and the security think tanks that are closely tied to them, perceive the security implications of a changing climate. More broadly, however, the C&S field is built on two bodies of work: the *Academic* and the *Policy* oriented. Academic research has long examined the nexus of security and environmental factors – for example, Homer-Dixon’s work on environmental scarcity and

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“China: The New ‘Near-Arctic State,’” Wilson Center, February 2018, <https://www.wilsoncenter.org/article/china-the-new-near-arctic-state>.

<sup>14</sup> Committee on Geoengineering Climate: Technical Evaluation and Discussion of Impacts et al., *Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration* (Washington, D.C., UNITED STATES: National Academies Press, 2015), <http://ebookcentral.proquest.com/lib/pensu/detail.action?docID=3439795>.

<sup>15</sup> Douglas G. MacMartin and Ben Kravitz, “Mission-Driven Research for Stratospheric Aerosol Geoengineering,” *Proceedings of the National Academy of Sciences* 116, no. 4 (January 22, 2019): 1089–94, <https://doi.org/10.1073/pnas.1811022116>; Committee on Geoengineering Climate: Technical Evaluation and Discussion of Impacts et al., *Climate Intervention: Reflecting Sunlight to Cool Earth* (Washington, D.C., UNITED STATES: National Academies Press, 2015), <http://ebookcentral.proquest.com/lib/pensu/detail.action?docID=3439848>.

<sup>16</sup> Adam Lockyer and Jonathan Symons, “The National Security Implications of Solar Geoengineering: An Australian Perspective,” *Australian Journal of International Affairs* 73, no. 5 (September 3, 2019): 485–503, <https://doi.org/10.1080/10357718.2019.1662768>; “CIA Director on the Geopolitical Risks of Climate Geoengineering,” *The Center for Climate & Security* (blog), July 25, 2016, <https://climateandsecurity.org/2016/07/25/cia-director-on-the-geopolitical-risks-of-climate-geoengineering/>.

conflict. However, the bedrock of current military C&S thinking originates from security or climate related think tanks like the Center for Climate and Security, CNA (formerly Center for Naval Analysis), the American Security Project and internationally from organizations like the Australia-based Centre for Policy Development. These C&S thought centers have emphasized the implications and undergirding science of climate change and have focused on providing such information with an ethos credible to the military and policy audiences that they target. For example CNA, by drawing on its Military Advisory Board (MAB), particularly those former officers with technical experience in the natural sciences and engineering, was able to foster an ethos of professionalism and credibility that supported early forays like *National Security and the Threat of Climate Change* in 2007 and *National Security and the Accelerating Risks of Climate Change* in 2014. These foundational documents undergird current western C&S approaches.<sup>17</sup>

Notable about the policy-oriented C&S literature is a relative dearth of quantitative analysis beyond descriptive statistics. This is not fundamentally a weakness of policy-oriented C&S; indeed, it is arguably one of the strengths as the policy-focused literature adopts a risk management approach that seeks to heed the cautions of the 9/11 Report and avoid further “failures of imagination.”<sup>18</sup> Simply, policy-oriented C&S research and publications have tended to engage with the topic of climate change without the need for achieving the statistical replicability that defines so much of academic rigor. The motivation for this perspective is highlighted in the foreword to CNA’s 2014 report: “military leaders typically look at challenges with imperfect or conflicting information. Despite not having 100 percent certainty, they weigh

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<sup>17</sup> CNA Military Advisory Board, *National Security and the Threat of Climate Change*, (Alexandria, VA: CNA Corporation, 2007); CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*.

<sup>18</sup> National Commission on Terrorist Attacks upon the United States, “The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States: Executive Summary,” July 2004, [https://govinfo.library.unt.edu/911/report/911Report\\_Exec.pdf](https://govinfo.library.unt.edu/911/report/911Report_Exec.pdf).

the consequences of various courses of action – including the consequences of no action – and make informed decisions based on their experience and risk forbearance.”<sup>19</sup> Thus, implicit within the policy-focused approach to C&S is a recognition of the unsettledness of the field and the necessity to act before information is complete.

The central drawback to this approach is that it creates a fissure between the academic literature and policy-oriented C&S works. Because it lacks robustness, the policy-focused C&S literature occasionally draws criticism from academia. For example, recent work by Selby et al. has leveled a strong critique of research undertaken by policy-focused researchers at the Center for Climate and Security on climate change related drought’s contribution to the onset of the Syrian Civil War.<sup>20</sup> Selby et al.’s criticism center around issues with the data and suggesting that alternative data refute both that the drought was the result of climate change and that it contributed significantly to the instability that precipitated the Syrian Civil War.<sup>21</sup>

The substantive divergence in the two bodies of literature is clear – policy-oriented C&S has accepted that threat multipliers impact security through mechanisms that we do not understand fully and has pushed for policies directed at mitigating and preparing for climate’s security impacts. Academia has worked to more clearly isolate the causal mechanisms that tie a changing climate to conflict. Such efforts have to this point yielded contested results and few actionable policy recommendations beyond calls for further research.<sup>22</sup>

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<sup>19</sup> CNA Military Advisory Board, *National Security and the Accelerating Risks of Climate Change*, i.

<sup>20</sup> Jan Selby et al., “Climate Change and the Syrian Civil War Revisited,” *Political Geography* 60 (September 1, 2017): 232 – 44, <https://doi.org/10.1016/j.polgeo.2017.05.007>; Femia and Werrel, *Climate Change and the Arab Spring*. For a more extensive review of contestation of this topic see Tobias Ide, “Climate War in the Middle East? Drought, the Syrian Civil War and the State of Climate – Conflict Research,” *Current Climate Change Reports* 4, no. 4 (December 1, 2018): 347 – 54, <https://doi.org/10.1007/s40641-018-0115-0>.

<sup>21</sup> Jan Selby et al., “Climate Change and the Syrian Civil War Revisited,”

<sup>22</sup> Beatrice Mosello, Lukas Rüttinger, and Liesa Sauerhammer, “The Climate Change-Conflict Connection - The Current State of Knowledge,” *Climate Security Expert Network*, Climate-Fragility Discussion Paper, November 12, 2019, 12.

## APPROACH

The initial intent of this project was to develop a broad assessment of C&S policy, inclusive not only of the US and its allies but also of near-peer competitors, particularly China and Russia. However, due to the limited availability of sources, a sample of US Allies was selected. Together the countries selected make up the Five Eyes intelligence sharing alliance – a fact indicative of the closely intertwined security interests of the sample nations. Furthermore, the countries’ geographic dispersion serves to highlight the variety of C&S impacts. For instance, both Australia and New Zealand are stakeholders deeply involved with the impacts of climate change in the Pacific; the United Kingdom and Canada both have interests in the Arctic.

At the core of this analysis is recognition that words and action do not necessarily move in tandem. A country might routinely highlight C&S in its rhetoric while taking few actions to address C&S issues practically. Much of the textual analysis has involved parsing statements that have been made from actions that have been taken. For instance, national strategies provide a wealth of ‘words’ but rarely indicate actions taken, while reports, particularly those mandated by the legislature, provide clearer insights as to what actions have been taken. It bears noting that actions need not be complete to have been considered as ‘action’ – the expansion of New Zealand’s Army is an ‘action’ that the country is undertaking despite the fact that it has not yet been fully realized.

The highest-level national strategy documents, such as the US’s *National Security Strategy*, serve primarily to indicate the prominence of C&S issues, particularly what respective nations are saying about C&S. More detailed reports provide a far more nuanced perspective on how countries were/are actually engaging with the security implications of climate change (for a full list of documents see Appendix II). In an attempt to ensure that the emphasis of this work

focuses on current efforts, the project concentrated on documents produced between 2015 and the present. To facilitate comparison across countries and documents, lists based on the C&S literature of the most prominent threat multipliers, burden multipliers, and climate impacts were compiled (Table I).

**Table I:**

Threat Multipliers	Burden Multipliers	Climate Impacts
<ul style="list-style-type: none"> <li>• Food/Water/Resource Scarcity or Insecurity</li> </ul>	<ul style="list-style-type: none"> <li>• Defense Infrastructure Vulnerability/Impact</li> </ul>	<ul style="list-style-type: none"> <li>• Extreme Weather</li> </ul>
<ul style="list-style-type: none"> <li>• Increasing Instability or State Fragility</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in HA/DR Missions</li> </ul>	<ul style="list-style-type: none"> <li>• Temperature Change</li> </ul>
<ul style="list-style-type: none"> <li>• Migration</li> </ul>	<ul style="list-style-type: none"> <li>• Black Flag Days</li> </ul>	<ul style="list-style-type: none"> <li>• Sea Level Rise</li> </ul>
		<ul style="list-style-type: none"> <li>• Changing Precipitation Patterns</li> </ul>

If a document referenced one of the listed multipliers or climate impacts it received a check mark indicating that it had engaged with that aspect of C&S. In addition to the key factors listed above, other references to C&S were also noted. In particular references made to the Arctic in relation to C&S were noted. The approach did not tally total references within a single document, instead it binarily reported if a specific C&S issue had been referenced. A more detailed description of the multipliers and climate impacts listed in Table I can be found in Appendix I and a list of all of the reviewed documents is provided in Appendix II.

A limitation to the textual analysis approach to C&S, or any security topic, is that some sources will be unavailable due to security concerns. For example, it is known that the Australian defense establishment has initiated research on the climate vulnerability of Australian military

installations because the Foreign Affairs, Defence and Trade References Committee’s inquiry into C&S recommend making public a portion of that analysis.<sup>23</sup> However, we do not currently know the extent of the research nor the potential security vulnerabilities that the analysis may highlight; as such, the document could not be included in the analysis, although the knowledge that such efforts have been undertaken was taken into consideration.

## **RHETORIC ON CLIMATE SECURITY**

### *Australia*

The *2016 Defence White Paper* is the principle strategy document guiding current Australian defense policy. The *White Paper* characterizes C&S issues as a driver of state fragility in the Pacific region through to 2035.<sup>24</sup> Furthermore, the strategy document indicates that the increasing frequency of extreme weather events, warming temperatures, and rising sea levels will contribute to instability and food insecurity.<sup>25</sup> The strategy also clearly connects impending threat multipliers with increasing burdens on the Australian Defence force noting that “Our strategic weight, proximity and resources place high expectations on us to respond to instability or natural disasters, and climate change means we will be called on to do so more often.”<sup>26</sup> The *2016 White Paper* recognizes another burden multiplier by noting that rising sea level and extreme weather events will impact the Australian defense infrastructure and installations – referred to by Australia, the UK, and New Zealand using the term ‘defense estate.’<sup>27</sup>

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<sup>23</sup> Foreign Affairs, Defence and Trade Committee and Department of the Senate, “Implications of Climate Change for Australia’s National Security” (Parliament of Australia, May 2018), [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Foreign\\_Affairs\\_Defence\\_and\\_Trade/National\\_security/Final\\_Report](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/National_security/Final_Report), vii.

<sup>24</sup> Australian Department of Defence, “2016 Defence White Paper,” February 2016, <https://www.defence.gov.au/Whitepaper/Docs/2016-Defence-White-Paper.pdf>, 41

<sup>25</sup> Australian Department of Defence, “2016 Defence White Paper,” 56

<sup>26</sup> Australian Department of Defence, “2016 Defence White Paper,” 56

<sup>27</sup> Australian Department of Defence, “2016 Defence White Paper,” 102

The *Defence Annual Reports* for 2016–17, 2017–18, and 2018–19 do not elaborate further on the C&S perspective set out in the *2016 White Paper* beyond the latter two noting that analysis of Australian Defense Estate’s vulnerability to climate change was ongoing.<sup>28</sup> More substantively, the Australian Senate’s Foreign Affairs, Defence and Trade References Committee conducted an extended inquiry exploring C&S issues. This report, drawing heavily on US C&S documents and advice from C&S experts, focuses dually on threat and burden multipliers.<sup>29</sup> Like the Senate inquiry itself, Australia’s broader approach has placed rhetorical emphasis on how climate will both drive instability and contribute to impediments to the military operating at usual capacity.

### *Canada*

In its leading national strategy document – 2017’s *Strong Secure Engaged* – the Canadian military identifies a changing climate as a national security threat, noting that “climate change threatens to disrupt the lives and livelihoods of millions around the world. It also presents an urgent call to innovate, to foster collective action, to work hand-in-hand with like-minded partners around the world.”<sup>30</sup> The impacts of climate change are principally understood as threat multipliers in *Strong Secure Engaged*. The strategy notes that climate change can aggravate the

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<sup>28</sup> Australian Department of Defence, “Defence Annual Report 16-17,” 2017, [https://www.defence.gov.au/AnnualReports/16-17/Downloads/DAR\\_2016-17\\_Complete.pdf](https://www.defence.gov.au/AnnualReports/16-17/Downloads/DAR_2016-17_Complete.pdf); Department of Defence, “Defence Annual Report 17-18,” 2018, [https://www.defence.gov.au/AnnualReports/17-18/Downloads/DAR\\_2017-18\\_Complete.pdf](https://www.defence.gov.au/AnnualReports/17-18/Downloads/DAR_2017-18_Complete.pdf), 129; Department of Defence, “Defence Annual Report 18-19,” 2019, [https://www.defence.gov.au/annualreports/18-19/DAR\\_2018-19\\_Complete.pdf](https://www.defence.gov.au/annualreports/18-19/DAR_2018-19_Complete.pdf), 137.

<sup>29</sup> Foreign Affairs, Defence and Trade Committee and Department of the Senate, “Implications of Climate Change for Australia’s National Security” (Parliament of Australia, May 2018), [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Foreign\\_Affairs\\_Defence\\_and\\_Trade/National\\_security/Final\\_Report](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/National_security/Final_Report).

<sup>30</sup> National Defence, “Strong Secure Engaged: Canada’s Defence Policy,” 2017, <http://dgpapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf>, 49.

underlying causes of conflict and foment tension in societies, especially those with weak governance systems.<sup>31</sup>

The Arctic figures prominently in the Canadian national strategy and the extensive transformations that climate change drives in the region are recognized by the Canadian military.<sup>32</sup> Centrally, the Canadian strategy guidance posits that the Arctic will see increasing activity and that Canada must expand its capacity to act in the far north.<sup>33</sup> It is also in the Arctic that Canada sees the burden multiplier C&S impacts, as increased activity in the Arctic is expected to demand expanded HA/DR and search and rescue capabilities.<sup>34</sup>

More recently Canada has made climate change a key part of its candidacy to regain a non-permanent seat on the United Nations Security Council. In *Together*, the Canadian government affirms its recognition of C&S, characterizing it as a threat multiplier. Specifically, the document notes the potential for climate change to disrupt agriculture, coastal communities, and damage infrastructure – possibly driving millions of climate migrants by 2050.<sup>35</sup> Taken together these documents indicate that Canada’s rhetorical engagement with C&S centers on how a changing climate will drive instability.

### ***New Zealand***

New Zealand has made responding to climate change one of the central facets of its national security strategy. The 2018 *Strategic Defence Policy Statement* sees climate change at a broad strategic level as one of several “complex disruptors” that pressure the status quo world.<sup>36</sup>

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<sup>31</sup> National Defence, “Strong Secure Engaged,” 53.

<sup>32</sup> National Defence, “Strong Secure Engaged,” 50 – 51, 79.

<sup>33</sup> National Defence, “Strong Secure Engaged,” 79.

<sup>34</sup> National Defence, “Strong Secure Engaged,” 51 – 52.

<sup>35</sup> Government of Canada, “Together,” March 2020, <https://www.international.gc.ca/campaign-campagne/assets/pdfs/unsc-csnu/unsc-csnu-en.pdf>, 13.

<sup>36</sup> New Zealand Ministry of Defence, “Strategic Defence Policy Statement 2018,” July 2018, <http://www.nzdf.mil.nz/downloads/pdf/public-docs/2018/strategic-defence-policy-statement-2018.pdf>, 6.

More directly, the document touches on numerous climate impacts exacerbating instability.<sup>37</sup>

The strategy also notes that climate change will require increased capacity to conduct HA/DR missions.<sup>38</sup>

In addition to the central strategy document, the New Zealand Ministry of Defence has developed a climate specific strategy which is unequivocal in stating that, “Climate change will be one of the greatest security challenges for New Zealand Defence in the coming decades.”<sup>39</sup> More recently, New Zealand’s Ministry of Defence has also released an implementation plan for addressing C&S issues. With respect to how New Zealand’s military is engaging rhetorically, this plan addresses estate vulnerability to a greater degree than do either the national strategy or the specific climate strategy. Together the documents indicate a deep engagement by New Zealand’s military with C&S in a way that highlights both the threat multiplier and burden multiplier aspects of the field.

### ***United Kingdom***

The UK has the oldest of the currently implemented national strategies examined here, dating from late-2015. *The National Security Strategy and Strategic Defence Review* examines the issues of climate change at several points, generally characterizing climate change as a “driver of instability.”<sup>40</sup> The strategy notes the potential for climate change to contribute to food and water insecurity, particularly in the Middle East and Sub-Saharan Africa.<sup>41</sup> The strategy also suggests that “rising sea levels threaten coastal cities and small islands. More frequent extreme

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<sup>37</sup> Ministry of Defence, “Strategic Defence Policy Statement 2018,” 18.

<sup>38</sup> Ministry of Defence, “Strategic Defence Policy Statement 2018,” 22, 31.

<sup>39</sup> New Zealand Ministry of Defence, “The Climate Crisis: Defence Readiness and Responsibilities,” December 2018, <https://www.defence.govt.nz/assets/Uploads/66cfc96a20/Climate-Change-and-Security-2018.pdf>, 3.

<sup>40</sup> Government of the United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom,” November 2015, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/555607/2015\\_Strategic\\_Defence\\_and\\_Security\\_Review.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/555607/2015_Strategic_Defence_and_Security_Review.pdf), 17.

<sup>41</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015,” 21.

weather events are likely to disrupt populations, agriculture and supply chains, making political instability, conflict and migration more likely.”<sup>42</sup> Additionally, the strategy recognizes that the UK’s overseas territories may be vulnerable to climate change.<sup>43</sup> The strategy indicates a preference for preemptively enhancing resilience in potential hotspots through efforts like the Green Climate Fund.<sup>44</sup> Such actions are seen as yielding greater return on investment than *post facto* assistance efforts.<sup>45</sup>

In the mid-2019 *Third Annual Report* on the national strategy, the UK reaffirmed its perspective that “climate change is rightly treated as a national security priority.”<sup>46</sup> The annual report reflects on the increasing frequency of extreme weather events in the UK, attributing them to a changing climate.<sup>47</sup> It also reemphasizes the UK’s efforts to foster resiliency now so that potentially vulnerable areas are more capable of responding to climate change effectively.<sup>48</sup> Collectively the strategy document and its *Third Annual Report* indicate that the UK has integrated C&S into its strategic approach, but that current emphasis is on how diplomatic and financial efforts can mitigate climate vulnerability – threat multipliers – in fragile states.

### ***United States***

The US’s high-level rhetoric on the importance of climate change to national security has declined during the Trump Administration. Of particular note, the 2017 *National Security*

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<sup>42</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015,” 21.

<sup>43</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015,” 25.

<sup>44</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015,” 66.

<sup>45</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015,” 66.

<sup>46</sup> Government of the United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015: Third Annual Report,” July 2019,

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/819613/NSS\\_and\\_SDSR\\_2015\\_Third\\_Annual\\_Report\\_-\\_FINAL\\_2\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819613/NSS_and_SDSR_2015_Third_Annual_Report_-_FINAL_2_.pdf), 3.

<sup>47</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015: Third Annual Report,” 7.

<sup>48</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015: Third Annual Report,” 37.

*Strategy* does not mention climate change, instead alluding to the need for America to embrace its energy dominance.<sup>49</sup> Nor does this critical strategic guidance refer to extreme weather, or any threat multiplier or burden multiplier in the context of C&S. It does, in passing, touch on the Arctic, but without reference to the rapidly changing dynamics of the polar region.<sup>50</sup> The analysis of the unclassified summary of the 2018 *National Defense Strategy* reveals a similar void of climate change related factors.<sup>51</sup> This is a significant shift from the Obama Administration's 2015 security strategy in which the term 'climate change' occurs more frequently than either Iran or North Korea, both of which figure heavily in the Trump era strategies. The 2015 strategy lists climate change as a "top strategic risk" discussing C&S within a threat multiplier framework.<sup>52</sup>

While the current national strategies eschew C&S issues, at less prominent levels, documents and officials have continued to reference C&S. For instance, the intelligence community's annual *Worldwide Threat Assessment*, released by the Director of National Intelligence, has routinely pointed to security implications from a changing climate. In particular these documents characterize how climate will contribute to migration, instability, food and water scarcity, as well as exacerbating health security and declining biodiversity.<sup>53</sup> Similarly, numerous military leaders that have served or are serving in the Trump Administration, including

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<sup>49</sup> 2017 National Security Strategy, pg. 22

<sup>50</sup> Office of the President, "National Security Strategy of the United States of America," December 2017, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>, 40.

<sup>51</sup> Jim Mattis, "2018 National Defense Strategy of the United States: Summary" (United States Department of Defense, January 2018), <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

<sup>52</sup> Office of the President, "National Security Strategy," February 2015, [https://obamawhitehouse.archives.gov/sites/default/files/docs/2015\\_national\\_security\\_strategy\\_2.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/2015_national_security_strategy_2.pdf), 2, 12.

<sup>53</sup> Office of the Director of National Intelligence, "Worldwide Threat Assessment of the US Intelligence Community," January 2019; Office of the Director of National Intelligence, "Worldwide Threat Assessment of the US Intelligence Community," February 2018.

former Secretary of Defense James Mattis and current officeholder Mark Esper, have publicly recognized the importance of C&S issues.<sup>54</sup>

The most prominent factors of C&S currently receiving attention in the US military context are – although not termed as such – burden multipliers, specifically the vulnerability of US military installations to the effects of climate change. This is especially the case since the publication in January 2019 of the *Report on Effects of a Changing Climate to the Department of Defense*, which offers “an assessment of the significant vulnerabilities from climate-related events in order to identify high risks to mission effectiveness on installations and to operations.”<sup>55</sup> The emphasis of this report is entirely focused on installation vulnerability and it does not note any threat multipliers. Beyond the dearth of engagement with threat multipliers, the report has also been critiqued by various C&S experts, particularly for failing to deliver legally mandated lists of the top ten most vulnerable installations for each service branch – these lists were eventually provided to Congress.<sup>56</sup> Despite its limits, the report sparked a spate of news articles and reaffirmed that the Pentagon continues to engage with C&S issues at some level.<sup>57</sup>

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<sup>54</sup> Francesco Femia and Caitlin Werrell, “UPDATE: Chronology of U.S. Military Statements and Actions on Climate Change and Security: Jan 2017- April 2019,” *The Center for Climate & Security* (blog), May 3, 2019, <https://climateandsecurity.org/2019/05/03/update-chronology-of-u-s-military-statements-and-actions-on-climate-change-and-security-jan-2017-april-2019/>; John Conger, “The New U.S. Department of Defense Leadership Team on Climate Security,” *The Center for Climate & Security* (blog), July 23, 2019, <https://climateandsecurity.org/2019/07/22/the-new-u-s-department-of-defense-leadership-team-on-climate-security/>.

<sup>55</sup> Department of Defense, “Report on Effects of a Changing Climate to the Department of Defense,” January 2019, <https://media.defense.gov/2019/Jan/29/2002084200/-1/-1/1/CLIMATE-CHANGE-REPORT-2019.PDF>, 2.

<sup>56</sup> Paulina Glass, “Lawmakers Tell Pentagon: Revise and Resubmit Your Climate-Change Report,” *Defense One*, February 5, 2019, <https://www.defenseone.com/threats/2019/02/lawmakers-tell-pentagon-revise-and-resubmit-your-climate-change-report/154657/>.

<sup>57</sup> Brady Dennis, Chris Mooney and, and Missy Ryan, “Pentagon Report Says Bases Face Climate Risks, but Critics Say It’s Short on Details,” *The Washington Post*, January 18, 2019, sec. Climate and Environment, <https://www.washingtonpost.com/climate-environment/2019/01/18/pentagon-report-details-climate-risks-bases-critics-say-its-short-detail/>; Anthony Capaccio, Jennifer A Dlouhy, and Ari Natter, “Pentagon Warns of Dire Risk to Bases, Troops From Climate Change,” *Bloomberg.Com*, January 18, 2019, <https://www.bloomberg.com/news/articles/2019-01-18/in-dire-report-pentagon-warns-bases-imperiled-by-climate-change>.

## ACTION ON CLIMATE SECURITY

### *Australia*

The Australian military has been conducting an evaluation of climate change's impacts on the Australian Defence estate since at least 2017.<sup>58</sup> Given the Foreign Affairs, Defence and Trade References Committee's recommendation to release an unclassified version of the estate vulnerability assessment, some results have likely been compiled, but as noted in the senate committee's inquiry, the extent of C&S risk assessment undertaken by the Australian Defence Force lags far behind the efforts undertaken in the US.<sup>59</sup> Beyond this, there is little indication that the Australian military has taken action to counter the impacts of a changing climate.

Australian military action to address C&S issues falls behind the perspective set out in the 2016 *Defense White Paper*. However, the Foreign Affairs, Defence and Trade References Committee's inquiry presents an opportunity for the military to redress this deficit of action. If substantive efforts are taken to achieve the recommendations set out by the committee this would narrow the gap between Australian rhetoric and action.

### *Canada*

The Canadian military is engaged with reducing emissions from its non-operational vehicles and from bases as part of Canada's broader commitments to the Paris Climate Agreement.<sup>60</sup> *Strong Secure Engaged* committed over \$200 million dollars to this effort.<sup>61</sup> The

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<sup>58</sup> Department of Defence, "Defence Annual Report 17-18," 2018, [https://www.defence.gov.au/AnnualReports/17-18/Downloads/DAR\\_2017-18\\_Complete.pdf](https://www.defence.gov.au/AnnualReports/17-18/Downloads/DAR_2017-18_Complete.pdf), 137; Department of Defence, "Defence Annual Report 18-19," 2019, [https://www.defence.gov.au/annualreports/18-19/DAR\\_2018-19\\_Complete.pdf](https://www.defence.gov.au/annualreports/18-19/DAR_2018-19_Complete.pdf), 129.

<sup>59</sup> Foreign Affairs, Defence and Trade Committee and Department of the Senate, "Implications of Climate Change for Australia's National Security" (Parliament of Australia, May 2018), [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Foreign\\_Affairs\\_Defence\\_and\\_Trade/National\\_security/Final\\_Report](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/National_security/Final_Report), 56.

<sup>60</sup> National Defence, "Defence Energy and Environment Strategy Harnessing Energy Efficiency and Sustainability," 2017, <https://www.canada.ca/content/dam/dnd-mdn/documents/reports/2017/20171004-dees-en.pdf>, 8.

<sup>61</sup> National Defence, "Strong Secure Engaged," 16.

Canadian Forces College has hosted several symposiums on C&S issues, with speakers from the Canadian military engaging C&S topics.<sup>62</sup> Most significantly, Canada is expanding its operational capabilities in the arctic through procurement of ice hardened vessels. The Harry DeWolf Arctic and Offshore Patrol Ships (AOPS) will greatly expand Canadian military capacity to operate in the Arctic as the vessels will be able to traverse in new ice up to 120 centimeters deep.<sup>63</sup> The first of these vessels is anticipated to be ready for service in spring 2020, with the second anticipated at the end of 2020 and one additional vessel entering service each year through 2024.<sup>64</sup> To support the AOPS Canada is also establishing a refueling site – Nanisivik in Nunavut.<sup>65</sup>

While Canada is making significant efforts to increase operational capacity in the Arctic, there remains a discrepancy between Canada’s rhetorical and tangible engagement with C&S. To close this gap and bring Canada’s engagement with climate issues in line with C&S expert’s recommendations efforts should be made to evaluate climate vulnerabilities within Canada’s defense infrastructure.<sup>66</sup>

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<sup>62</sup> Caitlin Werrell and Francesco Femia, “Climate Change at the Canadian Forces College,” International Military Council on Climate and Security, February 28, 2020, <https://imccs.org/2020/02/28/climate-change-at-the-canadian-forces-college/>.

<sup>63</sup> Nathan Gain, “Royal Canadian Navy’s First Harry DeWolf-Class AOPS Completes Builder’s Sea Trials,” *Naval News* (blog), December 3, 2019, <https://www.navalnews.com/naval-news/2019/12/royal-canadian-navys-first-harry-dewolf-class-arctic-and-offshore-patrol-ship-started-sea-trials/>; National Defence, “Arctic and Offshore Patrol Ships,” education and awareness, March 13, 2013, <https://www.canada.ca/en/department-national-defence/services/procurement/arctic-offshore-patrol-ships.html>.

<sup>64</sup> National Defence, “Arctic and Offshore Patrol Ships.”

<sup>65</sup> National Defence, “Arctic and Offshore Patrol Ships.”

<sup>66</sup> Climate and Security Advisory Group, “A Climate Security Plan for America: A Presidential Plan for Combating the Security Risks of Climate Change” (Center for Climate and Security, September 2019), [https://climateandsecurity.files.wordpress.com/2019/09/a-climate-security-plan-for-america\\_2019\\_9\\_24-1.pdf](https://climateandsecurity.files.wordpress.com/2019/09/a-climate-security-plan-for-america_2019_9_24-1.pdf); Kate Guy, “A Security Threat Assessment of Global Climate Change: How Likely Warming Scenarios Indicate a Catastrophic Security Future,” ed. Francesco Femia and Caitlin E Werrell (Center for Climate and Security, February 2020), <https://climateandsecurity.files.wordpress.com/2020/03/a-security-threat-assessment-of-climate-change.pdf>.

## *New Zealand*

In addition to incorporating C&S issues deeply into the strategic thinking as was noted above, New Zealand's military is taking decisive actions to prepare for C&S. The development of the *Responding to the Climate Crisis: An Implementation Plan* is a significant step that clearly delineates the path forward for New Zealand's military. The *Implementation Plan* also indicates the actions that New Zealand is currently taking and plans to take.<sup>67</sup>

Most notably, the New Zealand Army is expanding its force strength to 6,000, a 29% increase over current levels.<sup>68</sup> The purpose of this expansion is explicitly to increase New Zealand's capacity to meet the anticipated climate change related growth in HA/DR and stability operations in the Pacific.<sup>69</sup> New Zealand is also currently working on assessments of estate vulnerability to climate change, particularly sea level rise, and intends to incorporate such considerations into installation planning and strategies.<sup>70</sup> New Zealand has also sought to elevate the prominence of C&S issues at international forums.<sup>71</sup> As part of its mitigation efforts, the Ministry of Defence is also looking at how to most effectively measure and reduce defense related GHG emissions.<sup>72</sup> New Zealand's body of action on C&S is commensurate with its rhetoric; both words and actions indicate that the country and its military see C&S as a critical issue defining the security environment in the 21<sup>st</sup> century.

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<sup>67</sup> New Zealand Ministry of Defence, "Responding to the Climate Crisis," November 2019, <https://www.defence.govt.nz/assets/publication/file/DCF3EE802B/Responding-to-the-Climate-Crisis.pdf>, 6–7.

<sup>68</sup> "Personnel Summary," New Zealand Defence Force, accessed April 15, 2020, <http://www.nzdf.mil.nz/personnel-records/personnel-branch/>; New Zealand Ministry of Defence, "Defence Capability Plan," June 2019, <https://www.defence.govt.nz/assets/Uploads/03acb8c6aa/Defence-Capability-Plan-2019.pdf>, 17.

<sup>69</sup> New Zealand Ministry of Defence, "Defence Capability Plan," 17

<sup>70</sup> New Zealand Ministry of Defence, "Responding to the Climate Crisis," 11.

<sup>71</sup> New Zealand Ministry of Defence, "Responding to the Climate Crisis," 17.

<sup>72</sup> New Zealand Ministry of Defence, "Responding to the Climate Crisis," 14

## *United Kingdom*

In line with its strategic perspective, the UK's action on C&S have included melding diplomatic and financial efforts, notably including £5.8 billion in climate financing initiatives.<sup>73</sup> Despite the lack of engagement in the key strategic outlooks, the UK has established an extensive methodology for evaluating climate risk to the Ministry of Defense (MOD) estate. The Climate Impacts Risk Assessment Method (CIRAM) is a “risk assessment tool...designed to improve the resilience of MOD establishments to climate related hazards and ensure the continuity of defence outputs.”<sup>74</sup> However, the extent to which climate vulnerabilities have been assessed across the breadth of the MOD estate is unclear.

The MOD is also undertaking an effort to reassess its approach to climate change. To this end, Lt. General Richard Nugee was placed in charge of the review, which is expected to develop a strategy for reducing the military's contributions to GHG emissions.<sup>75</sup> It is likely however that this effort will touch on matters beyond emissions reduction and Lt. Gen. Nugee has noted that “I will be looking at all elements of defence, from equipment to infrastructure, our processes, functions and behaviours.”<sup>76</sup>

The Development Concepts and Doctrine Center (DCDC), a department within the MOD, published in 2018 the sixth edition of its *Global Strategic Trends* which describes key

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<sup>73</sup> United Kingdom, “National Security Strategy and Strategic Defence and Security Review 2015: Third Annual Report,” 3.

<sup>74</sup> United Kingdom Ministry of Defence, “Sustainability & Environmental Appraisal Tools Handbook Section 7: Climate Impacts Risk Assessment Methodology (CIRAM),” accessed April 15, 2020, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/842735/20191003-Section\\_7-CIRAM-O.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/842735/20191003-Section_7-CIRAM-O.pdf), 2.

<sup>75</sup> United Kingdom Ministry of Defence, “Lt Gen Richard Nugee to Lead MOD's Climate Change Policy,” GOV.UK, March 2020, <https://www.gov.uk/government/news/lt-gen-richard-nugee-to-lead-mods-climate-change-policy>.

<sup>76</sup> United Kingdom Ministry of Defence, “Lt Gen Richard Nugee to Lead MOD's Climate Change Policy,” GOV.UK, March 2020, <https://www.gov.uk/government/news/lt-gen-richard-nugee-to-lead-mods-climate-change-policy>.

security trends to mid-century.<sup>77</sup> Climate and security figures heavily in the document and is seen as a likely and significant factor in the security environment.<sup>78</sup> The document also engages with C&S with a fair deal of refinement, touching on numerous types of threat and burden multipliers; it also pushes the bounds of general climate engagement by discussing the potential for geopolitical tension engendered by unilateral geoengineering efforts.<sup>79</sup> If the current efforts to reevaluate the MODs approach to climate, in part by developing a climate strategy, are able to reflect the approaches noted in CIRAM and the DCDC research, the UK will have taken appreciable steps to align its actions on C&S with the MOD strategic rhetoric.

### ***United States***

As is the case with US rhetoric on C&S issues, US actions have centrally focused on addressing the effects of a changing climate on military readiness and other burden multipliers. For instance, the Navy developed the *Climate Change Installation Adaptation and Resilience* planning handbook which serves as a methodology for Naval planners to incorporate climate change into planning efforts.<sup>80</sup> The 2020 Defense Authorization Act ordered the use of this naval handbook by the other branches of the military to unify approaches to incorporating C&S into installation planning.<sup>81</sup> Similarly, the Combatant Commands must incorporate climate impacts into Area of Responsibility plans.<sup>82</sup> These initiatives are in many respects holdovers from the

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<sup>77</sup> Development, Concepts, and Doctrine Center, “Global Strategic Trends: The Future Starts Today” (Ministry of Defence, 2018), [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/771309/Global\\_Strategic\\_Trends\\_-\\_The\\_Future\\_Starts\\_Today.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/771309/Global_Strategic_Trends_-_The_Future_Starts_Today.pdf), 2.

<sup>78</sup> Development, Concepts, and Doctrine Center, “Global Strategic Trends,” 10.

<sup>79</sup> Development, Concepts, and Doctrine Center, “Global Strategic Trends,” 18, 61.

<sup>80</sup> Leidos, Inc. and Louis Berger, Inc, “Climate Change Planning Handbook: Installation Adaptation and Resilience” (Naval Facilities Engineering Command Headquarters, January 2017), [https://www.fedcenter.gov/kd/Items/actions.cfm?action=Show&item\\_id=31041&destination=ShowItem](https://www.fedcenter.gov/kd/Items/actions.cfm?action=Show&item_id=31041&destination=ShowItem), IN-2.

<sup>81</sup> United State Congress, “National Defense Authorization Act for Fiscal Year 2020,” December 2020, <https://www.congress.gov/116/bills/s1790/BILLS-116s1790enr.pdf>.

<sup>82</sup> United States Department of Defense, “National Security Implications of Climate Related Risks and a Changing Climate,” July 2015, <https://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf>, 6.

Obama administration that remain in effect. Another example of this is Department of Defense Directive 4715.21 which makes it policy for the military to include in its mission planning climate change related risk identification, assessment, and management.<sup>83</sup>

While rhetoric concerning climate change has disappeared from the leading US strategic outlooks, there are some points of emphasis within the national strategy that create spaces for C&S perspectives to persist. Specifically, the *National Security Strategy* calls for increasing resiliency “to withstand and recover rapidly from deliberate attacks, accidents, natural disasters, as well as unconventional stresses, shocks, and threats to our economy and democratic system.”<sup>84</sup> This umbrella of ‘resiliency’ creates opportunity for C&S issues to receive attention. In effect, this means that efforts to address C&S issues in the US context may not involve any direct mention of ‘climate’ instead discussing resiliency or environmental resiliency. This can be seen in the 2020 Defense Authorization Act which creates opportunity for the bases to spend on fostering installation resilience to the threat posed by extreme weather.<sup>85</sup>

The Navy, Coast Guard, and Department of Defense all released updated Arctic strategies in 2019, and although climate change is rarely referenced directly, all engage with the changing nature of the environment, namely through the reduction in sea ice coverage.<sup>86</sup> The Department of Defense Arctic Strategy also notes that the Army Corp of Engineers is examining impacts of climate change in Alaska – confirming some level of ongoing C&S integration.<sup>87</sup> These

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<sup>83</sup> United States Department of Defense, “Department of Defense Directive 4715.21: Climate Change Adaptation and Resilience,” January 2016, <https://dod.defense.gov/Portals/1/Documents/pubs/471521p.pdf>, 3.

<sup>84</sup> Office of the President, “National Security Strategy of the United States of America 2017,” 14.

<sup>85</sup> United State Congress, “National Defense Authorization Act for Fiscal Year 2020,” 256 (Section 327).

<sup>86</sup> Chief of Naval Operations, “Strategic Outlook for the Arctic” (United States Navy, January 2019), [https://www.navy.mil/strategic/Navy\\_Strategic\\_Outlook\\_Arctic\\_Jan2019.pdf](https://www.navy.mil/strategic/Navy_Strategic_Outlook_Arctic_Jan2019.pdf), 4; United States Coast Guard, “Arctic Strategic Outlook,” April 2019, [https://www.uscg.mil/Portals/0/Images/arctic/Arctic\\_Strategic\\_Outlook\\_APR\\_2019.pdf](https://www.uscg.mil/Portals/0/Images/arctic/Arctic_Strategic_Outlook_APR_2019.pdf), 12, 14-15; Department of Defense, “Report to Congress Department of Defense Arctic Strategy,” June 2019, <https://media.defense.gov/2019/Jun/06/2002141657/-1/-1/1/2019-DOD-ARCTIC-STRATEGY.PDF>, 3.

<sup>87</sup> Department of Defense, “Report to Congress Department of Defense Arctic Strategy,”

strategies straddle the divide between words and action, and are included here because collectively they indicate that the US military is developing plans for involvement in an increasingly prominent and accessible Arctic environment.

While most of the US action on C&S, especially during the Trump Administration, has focused on burden multipliers, there are some initiatives underway to build on US capacity to engage with the threat multiplier impacts of climate change. Of particular note is the establishment of the Climate Security Advisory Council to facilitate information sharing across the intelligence agencies and improve US capacity to understand and assess the threat of C&S.<sup>88</sup> If the products of this council remain consistent with past offerings from the intelligence community – in the annual *Worldwide Threat Assessment* – then this will likely provide some threat multiplier analysis that is otherwise minimized in the current political environment.

Climate and security experts call for further US military engagement with C&S – see for instance the Center for Climate and Security’s recent *Climate Plan for America*.<sup>89</sup> What is clear however is that, despite the absence of guidance from the highest level, the US security establishment remains committed to recognizing the consequences that a changing climate will have on the security environment. To date, these efforts have been flexible in shedding the politically charged ‘climate change’ nomenclature, instead adopting terms like ‘resiliency’ and ‘extreme weather’ to engage with the same topic. While this approach has been successful in ensuring continuing US engagement with burden multipliers, it seems less appropriate for promoting study of, and preparation for, the threat multiplying effects of climate change.

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<sup>88</sup> United State Congress, “National Defense Authorization Act for Fiscal Year 2020,” 2179 (Section 5321)

<sup>89</sup> Climate and Security Advisory Group, “A Climate Security Plan for America: A Presidential Plan for Combating the Security Risks of Climate Change” (Center for Climate and Security, September 2019), [https://climateandsecurity.files.wordpress.com/2019/09/a-climate-security-plan-for-america\\_2019\\_9\\_24-1.pdf](https://climateandsecurity.files.wordpress.com/2019/09/a-climate-security-plan-for-america_2019_9_24-1.pdf).

## DISCUSSION

The preceding analysis on words and actions suggests that, belying the current dearth of high-level engagement with C&S within the Trump Administration, the US remains both a thought- and action-leader in the C&S field. Despite not using the term, the US military is at the cutting edge of military approaches to burden multipliers. Indeed, burdens like temperature and weather-related black flag days, installation vulnerability to extreme weather, and readiness impacts are the central emphasis of the current US approach to C&S.

What is particularly noteworthy is that this discrepancy between words and action runs contrary to the observable trends of America's allies. While Canada, the United Kingdom, and Australia's rhetorical engagement with C&S outstrips their actions, America's military talks less and does more. There are several factors relating to this, not least of which is that readiness has been seen by many as a more politically viable way to discuss C&S. By framing C&S through the lens of ensuring the US military's capacity to fight and win wars, the topic is perceived to be more acceptable to climate-sceptic, pro-armed forces politicians.

New Zealand is another outlier that resists the 'say more than you do' trend. The efforts of the current government are significant. Climate change has been deeply integrated into the nation's national security strategy and this rhetoric is backed up by extensive action. This said, New Zealand's military is substantively smaller than the armed forces of the other nations examined and has a substantively different mission sets. This is not to diminish the efforts of New Zealand, it is merely a recognition of fact.<sup>90</sup> The extent to which the New Zealand military has adopted an emphasis on C&S is admirable, but an equivalent level of engagement from a

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<sup>90</sup> "Military Expenditure (Current USD)," The World Bank Data, accessed April 15, 2020, <https://data.worldbank.org/indicator/MS.MIL.XPND.CD>; "Armed Forces Personnel, Total," The World Bank Data, accessed April 15, 2020, <https://data.worldbank.org/indicator/ms.mil.totl.pl?view=map>.

country like the US seems politically infeasible and ill-advised – the US Army does not need to expand 29% to meet the challenge of climate change.

Recognizing this, however, there is the potential to think about how actors might more effectively work together to address C&S issues. It may be effective, prudent, and feasible for some militaries to make combating C&S issues a core mission. Countries like New Zealand could opt to emphasize responding to climate through targeting equipment acquisition and training doctrine in order to meet the anticipated need for HA/DR operation in a world impacted by climate change. By doing so, combined capacity to respond to the impacts of a changing climate is increased, while also potentially easing the burden on countries like the US that have comparative advantage in conducting high-intensity warfare. The US can, and should, conduct HA/DR operations, but by recognizing comparative advantages it may be possible to more efficiently share the anticipated burdens of climate change.

While such an approach might prove effective, it is not a replacement for extending the efforts by all militaries on C&S issues. These efforts should not be conducted in isolation and there is clearly room for idea sharing and benchmarking. For instance, as Canada, Australia, and New Zealand move to assess the vulnerability of their defense installations to climate change, both the US Navy's handbook and the UK's CIRAM should be reviewed, compared, and where appropriate, inform the approaches developed.

The divergence of words and actions warrants final note. For the United Kingdom, Canada, and Australia it would seem that to varying degrees, words are cheap. Each country addressed climate change in overarching strategic documents, but their subsequent actions have not reflected their own guidance. In contrast, the US military, despite the politically charged nature of the topic, has remained committed to engaging what has rightly been recognized as a

threat to the nation's security. By doing so without direct reference to climate change, some modest efforts have been able to move forward. To some degree, the continued engagement on C&S issues in the military depends upon a persistent and engaged body of researchers and retired military personnel operating within C&S focused think tanks, generating ideas and engaging with the legislature.

The current US approach is not without its faults, and in the long run the US security community must remember that C&S implications go beyond the tangible burden multiplier effects that can be neatly couched in the apolitical context of force readiness. If the US is to avoid a failure of imagination on climate change<sup>91</sup> then US military and political leaders must develop a means of addressing the ephemeral linkages and messy reality that climate will make bad situations worse. To do so does not necessarily require the acceptance of climate change as tolerable terminology. It might be achievable through the development and adoption of euphemistic language akin to ways that resiliency, extreme weather, and readiness have been used with burden multipliers.

## CONCLUSION

The purpose of this paper has been the analysis of rhetoric and actions, and an assessment of each. In appraising the different national efforts, it was critical to parse those things that had been said from that which has been done. By analyzing national strategies, reports, and other documents this paper has shown that Australia, Canada, and the United Kingdom are currently more rhetorically committed to addressing C&S issues. New Zealand is consistent in that its extensive rhetorical stance is underpinned by significant action. The guiding strategies of the US

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<sup>91</sup> National Commission on Terrorist Attacks upon the United States, "The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States: Executive Summary," July 2004, [https://govinfo.library.unt.edu/911/report/911Report\\_Exec.pdf](https://govinfo.library.unt.edu/911/report/911Report_Exec.pdf).

have abandoned the threat multiplier focused rhetoric of a half decade ago. Despite this, US military efforts to engage with C&S issues are extensive compared with its allies. This is especially the case regarding burden multipliers, a domain in which the US continues to engage rhetorically and has implemented actions that far exceed those taken by US allies.

Regardless of how much any of these countries have said or done, more efforts are needed to adequately address C&S. These efforts should not occur in isolation. This comparison shows there are parallels that can be drawn, and lessons learned, by greater engagement and MIL-MIL cooperation on C&S issues. Such comparative efforts are apt for risk assessment methodologies but should also extend to thinking about and preparing for threat multipliers. Collaboration should also extend to initiatives engaged in long-term thinking like that conducted at the UK's Development Concepts and Doctrine Center. Experts from the US, UK, Canada, Australia, and New Zealand should work together to address potential wild card scenarios like unilateral geoengineering.

In closing, this paper serves as an initial step. It has examined five countries, but efforts should continue so that broader comparisons can be drawn. Despite some variations, the language used by the countries examined here is closely matched. Just as one nation studies another's weapon systems, there is a prudence to exploring the way that other countries – especially those outside of America's sphere of alliances – speak and act with respect to climate change. Such engagement, however, was beyond the scope of this work. This paper has instead shown that in the case of military approaches to climate security – rhetoric can prove hollow while silence can mask action.

## APPENDIX I

The following section describes the different threat multipliers, burden multipliers, and climate impacts that were used to characterize national military engagement with C&S. Table II describes the evaluated threat multipliers. Table III lists and describes the different burden multipliers. Table IV indicates the types of climate impacts that were noted. Also included in the analysis were ‘other’ C&S issues, of these the Arctic was the only term that appeared with enough frequency to require parameters – specifically for a mention of the Arctic to be considered as relating to C&S there needed to be reference to a changing environment, or reducing ice, etc.

**Table II**

Threat Multipliers	Description
<b>Food/Water/Resource Scarcity or Insecurity</b>	Any reference to food, water, or resource scarcity that is tied in the text to climate change
<b>Increasing Instability or State Fragility</b>	Includes references in the text to changing climate increasing instability, leading to state fragility. Also includes general references to climate ‘making things worse’ or increasing social stresses
<b>Migration</b>	References to migration, or climate change leading to increasing migration. Climate migrants

**Table III**

Burden Multipliers	Description
<b>Defense Infrastructure Vulnerability/Impact</b>	Includes direct discussion of specific facility vulnerabilities and general reference to installation/estate vulnerability/impacts tied to climate change
<b>Increase in HA/DR Missions</b>	All reference to increasing or expanding Humanitarian Assistance and Disaster Relief operation in the context of climate change. Also includes references to changes in search and rescue operation requirements tied to climate change
<b>Black Flag Days</b>	Includes references to “black flag days” and reference to training delays or loss due to climate/weather impacts

**Table IV**

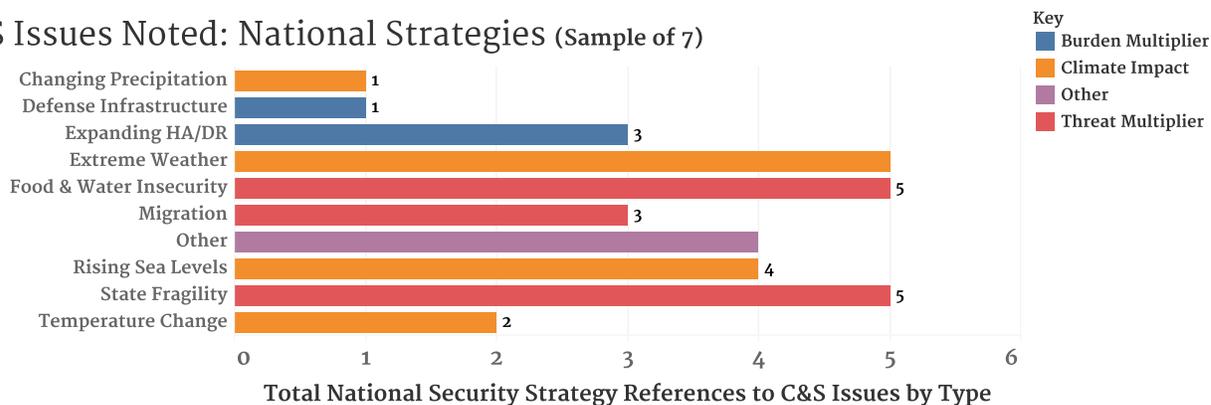
Climate Impacts	Description
<b>Extreme Weather</b>	All references to extreme weather, also any reference to specific types of extreme weather, e.g. ‘hurricanes’ that are tied to climate change
<b>Temperature Change</b>	Any reference to warming/rising/changing temperature
<b>Sea Level Rise</b>	Any reference to rising/increasing/changing sea levels
<b>Changing Precipitation Patterns</b>	Any reference concerning changing precipitation/rainfall.

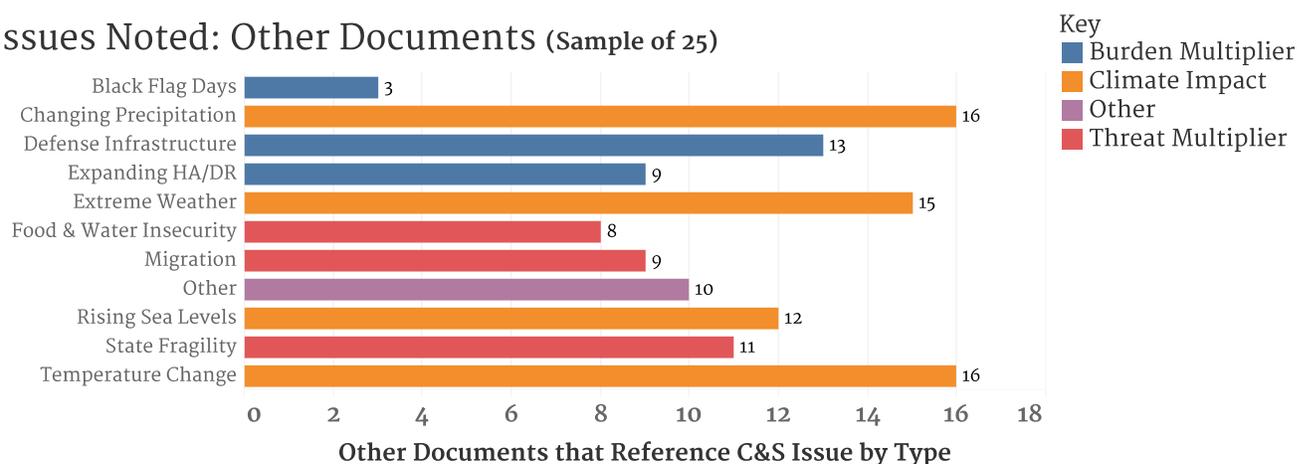
## APPENDIX II

The above analysis of words and action is based on examination of military strategies, reports, and public websites. The list of the seven top-level national strategy documents is displayed in Table V and all of the twenty-five other documents are listed in Table VI and Table VII. Figures I and II provide visualization of how many of the documents noted each type of C&S issue. It is noteworthy that this analysis did not measure the frequency that a specific document referenced a threat multiplier, burden multiplier or climate impact, rather it is a binary metric of whether a specific C&S issue was referenced at least once in that particular document. Full citations for the documents are included in the bibliography.

**Figure I**

C&amp;S Issues Noted: National Strategies (Sample of 7)



**Figure II****C&S Issues Noted: Other Documents (Sample of 25)****Table V****C&S References: National Strategies**

Value of 1.000 indicates Reference to C&amp;S Issue in Document

	2016 Defence White Paper	2018 National Defense Strategy of the United States: Summary	National Security Strategy 2015	National Security Strategy and Strategic Defence and Security Review..	National Security Strategy and Strategic Defence and Security Review..	National Security Strategy of the United States of America 2017	Strategic Defence Policy Statement 2018	Strong Secure Engaged: Canada's Defence Policy	Sustainability & Environmental Appraisal Tools Handbook Section 7: ..
Food & Water Insecurity	1.000		1.000	1.000			1.000	1.000	
Migration			1.000	1.000			1.000		
State Fragility	1.000		1.000	1.000	1.000		1.000	1.000	
Black Flag Days									
Defense Infrastructure	1.000								1.000
Expanding HA/DR	1.000						1.000	1.000	
Changing Precipitation					1.000		1.000		1.000
Extreme Weather	1.000		1.000	1.000	1.000		1.000	1.000	1.000
Rising Sea Levels	1.000		1.000	1.000			1.000		1.000
Temperature Change	1.000				1.000		1.000		1.000
Other			1.000	1.000			1.000	1.000	1.000





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