

The Threat Divider: Expanding the Role of the Military in Climate Change Adaptation

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I. INTRODUCTION

On October 13, 2014, Secretary of Defense Chuck Hagel delivered a press release in which he spoke unequivocally about the national security implications of climate change.¹ “Among the future trends that will impact our national security,” he declared, “is climate change. Rising global temperatures, changing precipitation patterns, climbing sea levels, and more extreme weather events will intensify the challenges of global instability, hunger, poverty, and conflict.”² The Secretary went on to describe the forthcoming integration of climate change considerations into national defense policy through the Department of Defense’s (“DoD” or “Department”) administrative apparatus. This policy directive includes the Department’s “Climate Change Adaptation Roadmap,” a military foray into the realm of climate change adaptation released on the same day that is unprecedented in its scope.³

1. Chuck Hagel, *The Department of Defense Must Plan for the National Security Implications of Climate Change*, WHITE HOUSE BLOG (Oct. 13, 2014, 11:30 AM) [hereinafter Hagel, *Department of Defense Must Plan*], <http://www.whitehouse.gov/blog/2014/10/13/defense-department-must-plan-national-security-implications-climate-change> [http://perma.cc/WVM5-28GM]. On the same day, Secretary Hagel gave a speech at the Conference of Defense Ministers of the Americas in Arequipa, Peru. The content of the speech was much the same as the press release. John D. Banusiewicz, *Hagel to Address ‘Threat Multiplier’ of Climate Change*, U.S. DEP’T DEF. (Oct. 13, 2014), <http://www.defense.gov/news/newsarticle.aspx?id=123398> [http://perma.cc/7VYG-V39R]; Chuck Hagel, *Secretary of Defense Speech: Conference of Defense Ministers of the Americas*, U.S. DEP’T DEF. (Oct. 13, 2014) [hereinafter Hagel, *Secretary of Defense Speech*], <http://www.defense.gov/News/Speeches/Speech-View/Article/605617> [http://perma.cc/3S96-M7TE]. Though the author admires former Secretary Hagel’s leadership on climate change initiatives, he recognizes that this development is ironic in light of the unanimously passed Byrd-Hagel Resolution of 1997. Co-sponsored by then-Senator Hagel, the resolution expressed the sense of the Senate that the United States should not become a signatory to the landmark international accord on greenhouse gasses known as the Kyoto Protocol. S. Rep. No. 105–54 (1997).

2. Hagel, *Department of Defense Must Plan*, *supra* note 1.

3. U.S. DEP’T OF DEF., 2014 CLIMATE CHANGE ADAPTATION ROADMAP (2014), http://www.acq.osd.mil/ie/download/CCARprint_wForeword_c.pdf [http://perma.cc/U8WP-KFWH]. Generally speaking, adaptation and mitigation are two broad, often overlapping approaches to dealing with climate change. Adaptation is the focus of this Note, and refers

It is all but undeniable that climate change creates drastic national security concerns for the United States, despite the assertions of certain contrary political forces.⁴ While the United States legislature⁵ and judiciary⁶ can and should play a direct role in addressing these risks by abrogating climate risk, the executive branch and its agencies, in comparison, possess tremendous opportunities and abilities to do so. Specifically, the armed forces under the DoD⁷ face unique challenges, but also possess unique advantages, in the realm of climate change adaptation. Certainly the military divisions under the executive play a paramount role in hemming national security risks; due to its developing expertise, the possibility of the military's enormous influence in the realm of climate change adaptation should be recognized and embraced.⁸

to alterations in behavior and technology that allow societies to cope with climate change impacts. Mitigation refers to alterations in behavior and technology such that societies can reduce their contribution to anthropogenic climate change. Experts consider both strategies important, but mitigation is often seen as being only proactive in the long-term, whereas adaptation can be proactive and reactive in the short- and long-term. See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Fourth Assessment Report: Climate Change 2007, 2.5.2 Mitigation, Adaptation and Climate Change Impacts*, http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch2s2-5-2.html [<http://perma.cc/D7GE-THZJ>] (last visited Aug. 14, 2015).

4. For example: "It is disappointing, but not surprising, that the president and his administration would focus on climate change when there are other, legitimate threats in the world." These are the words of Senator James M. Inhofe of Oklahoma, a Republican member of the Senate Armed Services Committee and the U.S. Senate Environment and Public Works Committee, regarding the Pentagon report. Coral Davenport, *Pentagon Signals Security Risks of Climate Change*, N.Y. TIMES (Oct. 13, 2014), <http://www.nytimes.com/2014/10/14/us/pentagon-says-global-warming-presents-immediate-security-threat.html?r=0> [<http://perma.cc/75J7-HFSN>].

5. See Mark E. Rosen, *Energy Independence and Climate Change: The Economic and National Security Consequences of Failing to Act*, 44 U. RICH. L. REV. 977, 1042 (2010) (advocating for a legislative successor to the Kyoto protocol, embrace of cap-and-trade legislation, and increased funding for alternative energy research in the DOE, among other ideas).

6. The twenty-first century judiciary, too, has had a role in climate change adaptation through its reaffirming administrative authority to combat climate change pursuant to the Clean Air Act. See, e.g., *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427 (2014) (holding that EPA had authority to regulate significant greenhouse gas emissions from power plants already being regulated for emitting conventional pollutants); *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007) ("Because greenhouse gases fit well within the Clean Air Act's capacious definition of 'air pollutant,' we hold that EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.").

7. Specifically, the Department of the Army, the Department of the Navy, and the Department of the Air Force.

8. Rather creative suggestions as to the military's ability to address climate change through fossil fuel independence have been proposed. See Sarah E. Light, *Valuing National Security: Climate Change, The Military, And Society*, 61 UCLA L. REV. 1772 (2014) ("By linking a

This Note argues that the military's role in climate change adaptation—specifically in regards to national security threats domestically and abroad—should be embraced and expanded as adaptation efforts become increasingly necessary. Part II will provide an overview of climate change's ability to increase national security concerns through its status as a “threat multiplier.” Part III will provide a review of the legal framework supporting military action on climate change, actions already taken by military agencies to integrate climate change considerations into their policy and planning—with a significant case study of Naval operations in the Arctic—and finally a series of findings and conclusions based on these developments. Part IV will present recommendations for expanded military action in climate change adaptation, justifications for those recommendations based largely on current federal policy, and potential criticisms and responses to such expansion. Part V will be the conclusion.

II. CLIMATE CHANGE AND NATIONAL SECURITY: AN OVERVIEW

Recognition of climate change's role in posing national security threats is not new, although “[u]ntil recently, climate change received virtually no sustained analysis in either academic or policy circles as a potential threat to national security.”⁹ President Obama's integration of climate policy into his administration's agenda indicates unprecedented force and political will to address climate change, though many political entities would argue that such willpower is either insufficient and delayed on the one hand,¹⁰ or unnecessary and onerous on the other.¹¹ The political

reduction in reliance on fossil fuels to the value of promoting national security . . . the Military-Environmental Complex has the potential to change . . . behavior and political debate, about energy use and climate change.”).

9. Jody Freeman & Andrew Guzman, *Climate Change and U.S. Interests*, 109 COLUM. L. REV. 1531, 1575–76 (2009) (describing the growth in academic, governmental and nongovernmental analyses of the link between climate change and national security).

10. As to smog reduction: “[L]et's also note that the nation would already have more or less the same [smog reduction] standards in place had the White House not caved in to political expediency and pulled the rug out from under the previous administrator of the [EPA], Lisa Jackson, who made much the same proposal in 2011.” Robert B. Semple Jr., *New Smog Rules: Good but Later than They Had to Be*, N.Y. TIMES: TAKING NOTE (Nov. 26, 2014, 2:59 PM), <http://takingnote.blogs.nytimes.com/2014/11/26/new-smog-rules-good-but-later-than-they-had-to-be/> [http://perma.cc/ES59-SKNJ].

11. President Obama has faced consistent opposition to his climate agenda from Congress. For example: “I have heard from Kentuckians across the commonwealth about

willingness to publicly acknowledge these security implications has evolved from a gradually intensifying seriousness regarding the relationship between climate change and national security.¹²

Secretary Hagel's brief statement both confirms the nascence of this federal willpower and conveniently describes the mechanisms of climate change that pose national security implications. In the realm of defense, climate change is characterized primarily as a "threat multiplier" rather than a direct threat in its own right.¹³ In that capacity, "climate change is likely to exacerbate political instability around the world as weak or poor governments struggle to cope with its impacts."¹⁴ Its potential to increase conflict poses concrete challenges to the operation of a global military force. Secretary Hagel provides a useful summary:

The military could be called upon more often to support civil authorities, and provide humanitarian assistance and disaster relief in the face of more frequent and more intense natural disasters. Our coastal installations are vulnerable to rising sea levels and increased flooding, while droughts, wildfires, and more extreme temperatures could threaten many of our training activities. Our supply chains could be impacted, and we will need to ensure our critical equipment works under more extreme weather conditions. Weather has always affected military operations, and as the climate changes, the way we

the pain being inflicted on them by E.P.A.'s unilateral actions,' [Mitch] McConnell said in a statement. "I fully intend to do everything I can do to fight these onerous E.P.A. regulations." Coral Davenport, *Republicans Vow to Fight E.P.A. and Approve Keystone Pipeline*, N.Y. TIMES (Nov. 10, 2014), http://www.nytimes.com/2014/11/11/us/politics/republicans-vow-to-fight-epa-and-approve-keystone-pipeline.html?_r=0 [<http://perma.cc/WR7H-LMER>]; see also Trip Gabriel, *Democrats in Coal Country Run from E.P.A.*, N.Y. TIMES (June 2, 2014), <http://www.nytimes.com/2014/06/03/us/carbon-plan-puts-democrats-in-coal-states-on-the-defensive.html> [<http://perma.cc/NY6Q-JYPP>].

12. "It is evident that American political leaders are increasingly seeing climate change as a national security issue. . . . In May 2007, Admiral Joseph Prueher, the former Commander-in-Chief of the U.S. Pacific Command, testified to the Senate that 'climate change will become a significant national security issue.'" See generally John Holland, *The United States and its Climate Change Policy: Advocating an Alignment of National Interest and Ethical Obligations*, 23 NOTRE DAME J.L. ETHICS & PUB. POL'Y 623, 639-40 (2009) (describing an increase in American political attention to climate change as a national security issue).

13. "In our defense strategy, we refer to climate change as a 'threat multiplier' because it has the potential to exacerbate many of the challenges we are dealing with today—from infectious disease to terrorism. We are already beginning to see some of these impacts." Hagel, *Department of Defense Must*, *supra* note 1. More traditional threats to national security would be, for example, those posed by foreign military aggression and terrorism.

14. Freeman & Guzman, *supra* note 9, at 1576-77; see also John M. Broder, *Climate Change Seen as Threat to U.S. Security*, N.Y. TIMES (Aug. 8, 2009), <http://www.nytimes.com/2009/08/09/science/earth/09climate.html?pagewanted=all> [<http://perma.cc/73FA-GJTY>].

execute operations may be altered or constrained.¹⁵

Logistically, “[t]he effects of the changing climate will be felt across the full range of Department activities, including plans, operations, training, infrastructure, and acquisition,” although “[t]he direction, degree, and rates of the physical changes will differ by region, as will the effects to the Department’s mission and operations.”¹⁶ More generally, climate change can also deeply disturb sociopolitical and economic norms upon which peace and stability hinge. It could “destabilize fragile political regimes, exacerbate conflicts over scarce resources, increase the threat of terrorism, disrupt trade, and produce millions of refugees,” potentially invoking a response by the U.S. military in each case.¹⁷

The link between many of these indirect effects and climate change is somewhat attenuated compared to the link between climate change and its direct environmental effects. At this early stage of its ongoing analysis, the Department of Defense, perhaps recognizing this attenuation, has narrowed these various threat multiplication factors down to four major environmental phenomena that climate change creates directly as likely interrupters to Department activities: (1) rising global temperatures; (2) changing precipitation patterns; (3) increasing frequency or intensity of extreme weather events; and (4) rising sea levels and associated storm surges.¹⁸

Climate change’s ability to multiply risks and thereby deteriorate an unstable geopolitical situation is perhaps best exemplified, in the context of recent events, by the contemporary civil unrest and war in Syria. Though undeniably a direct response to the actions of a governmental regime frequently characterized as brutal,¹⁹ civil unrest in Syria was likely aggravated by sudden, catastrophic environmental shifts across the nation, which resulted in droughts, and by the national government’s mismanagement of the resulting

15. Chuck Hagel, *Foreword* to U.S. DEP’T OF DEF., *supra* note 3.

16. U.S. DEP’T OF DEF., *supra* note 3, at 4.

17. Freeman & Guzman, *supra* note 9, at 1575–76.

18. U.S. DEP’T OF DEF., *supra* note 3, at 4.

19. See Francesco Femia & Caitlin Werrell, *Syria: Climate Change, Drought and Social Unrest*, CTR. FOR CLIMATE & SECURITY (Feb. 29, 2012), <http://climateandsecurity.org/2012/02/29/syria-climate-change-drought-and-social-unrest/> [http://perma.cc/EQ74-ZJHJ].

situation.²⁰ The twenty-first century saw the country exposed to disastrous water scarcity; its available water resources decreased by fifty percent between 2002 and 2008, due to human mismanagement and environmental conditions,²¹ and four years of continuous drought from 2006 to 2010 displaced 1.5 million people within the country.²² The water shortage scourged sixty percent of Syrian land, pushing millions into poverty.²³ Many of the displaced climate refugees relocated from their rural homes to urban centers, placing an unprecedented strain on Syria's economically depressed cities as job competition skyrocketed in tandem with competition for potable water.²⁴ The environmental and economic stressors on the populace were severely compounded by governmental mismanagement and apparent indifference,²⁵ further ripening the likelihood of cascading civil unrest and, ultimately, civil war.²⁶

Amongst the four major categories outlined by Secretary Hagel in the Climate Adaptation Roadmap, the Syrian conflict, influenced as it was by drought and internal displacement,²⁷ comes under the category of "changing precipitation patterns." Of course, it would be impossible to attribute the Syrian conflict

20. *Id.*; see, e.g., Brad Plumer, *Drought Helped Cause Syria's War. Will Climate Change Bring More Like It?*, WASH. POST: WONKBLOG (Sept. 10, 2013), <http://www.washingtonpost.com/blogs/wonkblog/wp/2013/09/10/drought-helped-caused-syrias-war-will-climate-change-bring-more-like-it/> [<http://perma.cc/F2BZ-AGJS>]; Davenport, *supra* note 4.

21. Robert F. Worth, *Earth Is Parched Where Syrian Farms Thrived*, N.Y. TIMES (Oct. 13, 2010), <http://www.nytimes.com/2010/10/14/world/middleeast/14syria.html> [<http://perma.cc/3GSL-LDNY>].

22. Plumer, *supra* note 20.

23. Femia & Werrell, *supra* note 19. In response to the unavailability of usable water, many Syrian farmers have illegally drilled groundwater wells to irrigate their crops; this practice decreased the battered water table even further. See *Syria: Why the Water Shortages?*, IRIN (Mar. 25, 2010), <http://www.irinnews.org/report/88554/syria-why-the-water-shortages> [<http://perma.cc/3ZVR-ECGN>].

24. Femia & Werrell, *supra* note 19.

25. Major examples of the Assad regime's mismanagement of water resources include its subsidization of growing water-intensive crops and its promotion of poor irrigation practices. See Plumer, *supra* note 20. Among these irrigation practices were irrigation by flooding, which uses much more water than drip-irrigation. See *Syria: Why the Water Shortages*, *supra* note 23. The government spent \$15 billion on unfruitful irrigation projects between 1988 and 2000. Worth, *supra* note 21.

26. See, e.g., Plumer, *supra* note 20; Tara A. Sheldon, *No Farms, No Food: Local Taxation and the Preservation of Connecticut's Farmland*, 45 CONN. L. REV. 1045, 1079–1081 (arguing that because climate change threatens food security globally, farmland protection plays an important role in national food security).

27. Femia & Werrell, *supra* note 19.

entirely to climate change; the escalating tensions among the Assad regime, its supporters, and its opponents were primarily responsible for sparking conflict.²⁸ However, assuming that climate change affected the likelihood of widespread civil unrest in Syria, we may further argue that it was not the drought per se but rather the regime's ineffective response to it that influenced the outcome.²⁹ It is precisely this sort of reaction to dramatic environmental turbulence that actuates the threat multiplication effect of climate change, which increases risks to national security. Indeed, political or economic instability might be preconditions for national security threats arising from climate change, in its capacity as a threat multiplier, to precipitate conditions so severe as to result in complete systemic collapse.

By the same token, it is not at all clear that appropriate governmental management of increasingly scarce water would have indefinitely forestalled the explosion of civil unrest that occurred in 2011. But it would have hedged the risk posed by climate change in its character as a threat multiplier.

Many other underdeveloped or unstable nations are exposed to climate risks of the same magnitude as the risk in Syria, thus offering the possibility of a similar breakdown. As the four categories in the Climate Adaptation Roadmap imply, drought is not the only climate impact that multiplies national security threats. In recent years, rising seas have inundated the crops of Bangladeshi³⁰ farmers.³¹ The consequences of the extreme

28. Cf. Tom Ruys, *The Syrian Civil War and the Achilles' Heel of the Law of Non-International Armed Conflict*, 50 STAN. J. INT'L L. 247, 251 (describing certain elements that escalated tensions between the Assad regime and rebels); see *Syria Profile: A Chronology of Key Events*, BBC NEWS, <http://www.bbc.com/news/world-middle-east-14703995> [<http://perma.cc/V9G2-KLNA>] (last visited Oct. 4, 2015).

29. The poor governmental response includes failure to recognize the severity of the country's ongoing water shortage, the promotion of poor water management practices described in note 25, *supra*, and unwillingness or inability to create a legal or practical framework for assisting the most affected demographics, such as farmers and urbanites. See Femia & Werrell, *supra* note 19.

30. Bangladesh ranks in the "medium development" category in the United Nation Development Program's Human Development Index ("HDI"). In 2014, it ranked 142nd out of 187 countries. See *Human Development Report 2014: Bangladesh*, U.N. DEV. PROGRAMME, <http://hdr.undp.org/en/countries/profiles/BGD> [<http://perma.cc/HA7J-8WMH>] (last visited Aug. 14, 2015).

31. See Lisa Friedman, *Climate Change Makes Refugees in Bangladesh*, SCI. AM. (Mar. 3, 2009), <http://www.scientificamerican.com/article/climate-change-refugees-bangladesh/> [<http://perma.cc/2CET-UED2>].

flooding in Bangladesh are similar to the results of droughts in Syria: increased urbanization, the growth of slums, and the limiting of job opportunities.³² It is easy to imagine the type of civil unrest and societal breakdown that occurred in Syria occurring in Bangladesh,³³ caused by fundamentally similar factors.³⁴

A rapid rise in sea level also poses the unprecedented threat of causing nations to disappear entirely. The low-lying Republic of the Maldives,³⁵ an island nation facing greater climate threats than nearly any other nation,³⁶ is a case in point. While the government in recent years has made commitments to coping with sea-level rise,³⁷ political turmoil and an unstable, corrupt democratic system have significantly hampered progressive climate adaptation efforts.³⁸ Radical movements, including growing religious

32. *See id.*

33. Prior to the outbreak of unrest and ultimately civil war in Syria, the country was also in the “medium development” category. It ranked 111th out of 169 countries measured on the 2010 HDI index. *See* U.N. DEV. PROGRAMME, HUMAN DEVELOPMENT REPORT 2010: THE REAL WEALTH OF NATIONS: PATHWAYS TO HUMAN DEVELOPMENT 142 (2010), http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf [<http://perma.cc/ZQ26-UKYA>].

34. It should be noted that the Government of Bangladesh appears to be attempting to abrogate these specific climate risks, as well as other threats to the country’s stability and ongoing development in the context of rapid urbanization. *See generally* WORLD BANK, BANGLADESH: URBAN RESILIENCE PROJECT: ENVIRONMENTAL MANAGEMENT FRAMEWORK (2014), http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/01/15/000442464_20150115083655/Rendered/PDF/E47220SAR0EMF000Box385420B00PUBLIC0.pdf [<http://perma.cc/2TUM-34YF>].

35. The highest natural point in the nation is 2.4 meters above sea level, while the lowest point is at sea level. *See The World Factbook: Maldives*, CENT. INTELLIGENCE AGENCY, <https://www.cia.gov/library/publications/the-world-factbook/geos/mv.html> [<http://perma.cc/VH99-7MPL>] (last visited Aug. 14, 2015). Maldives ranked 103rd in the HDI scale in 2014. *See Human Development Reports: Maldives*, U.N. DEV. PROGRAMME, <http://hdr.undp.org/en/countries/profiles/MDV> [<http://perma.cc/TW9Q-9MUQ>] (last visited Aug. 14, 2015).

36. In addition to its low elevation, the country’s climate risk is increased by its equatorial location and its preexisting monsoon vulnerability. *See Concerted Efforts Needed to Support Maldives Adapt to Climate Change*, WORLD BANK (Jun. 19, 2013), <http://www.worldbank.org/en/news/press-release/2013/06/19/concerted-efforts-needed-to-support-maldives-adapt-to-climate-change-world-bank-report-findings-indicate> [<http://perma.cc/3X4C-V5LS>].

37. Notably, in 2008, then-President Mohamed Nasheed committed to diverting a portion of the nation’s tourist revenue into a fund for the purpose of purchasing land in the event of a mass migration due to rising seas. *See* Randeep Ramesh, *Paradise Almost Lost: Maldives Seek to Buy a New Homeland*, GUARDIAN (Nov. 9, 2008, 7:01 PM), <http://www.theguardian.com/environment/2008/nov/10/maldives-climate-change> [<http://perma.cc/HYK5-FZX5>].

38. Katherine Boehrer, *Mohamed Nasheed: ‘There’s Nothing More Conservative than Conserving the Planet,’* HUFFINGTON POST (Nov. 14, 2014, 1:08 PM), <http://>

extremism and support of international terrorism, further threaten to destabilize the nation.³⁹ In broad semblance to the Syrian situation, both climate change and traditional national security threats like terrorism beleaguer the island nation, which is increasingly unable to cope with either.

Several other nations are similarly situated to the examples described above: disproportionately threatened by climate change, facing political instability, and with relatively low human development.⁴⁰ Against this backdrop of international national security threats gravely multiplied by climate change, it is prudent to examine the history of the United States military apparatus' efforts to preemptively adapt and prepare for climate impacts.

III. MILITARY ACTIONS IN CLIMATE CHANGE ADAPTATION: LEGAL FRAMEWORK, HISTORICAL DEVELOPMENTS, AND FINDINGS AND CONCLUSIONS

Within the first few years of the twenty-first century, certain military minds in America began to consider the implications of climate change. In 2007, for example, Admiral Joseph Prueher, former Commander-in-Chief of the U.S. Pacific Command, testified to the Senate that "climate change will become a significant national security issue."⁴¹ The next year, the National Intelligence Council produced the most comprehensive analysis to date of the implications of climate change for national security in the coming decades.⁴² The report included input from all eighteen U.S. intelligence agencies and concluded that climate change could

www.huffingtonpost.com/2014/11/14/mohamed-nasheed-climate-change_n_6145716.html [<http://perma.cc/292G-9TVU>].

39. *Id.*

40. Several African nations, for example, fit this mold. See generally MIKE SHANAHAN ET AL., U.N. EDUC., SCIENTIFIC AND CULTURAL ORG., CLIMATE CHANGE IN AFRICA: A GUIDEBOOK FOR JOURNALISTS (Fackson Banda ed., 2013), <http://unesdoc.unesco.org/images/0022/002254/225451e.pdf> [<http://perma.cc/FZL2-5WLE>].

41. Holland, *supra* note 12, at 640 (quoting *Climate Change: National Security Threats: Hearing Before the S. Comm. on Foreign Relations*, 110th Cong. 12 (May 9, 2007) (prepared statement of Admiral Joseph W. Prueher, U.S. Navy (Ret.))).

42. See Freeman & Guzman, *supra* note 9, at 1575; Tom Gjelten, *Intel Report Eyes Climate Change-Security Link*, NPR (June 24, 2008, 12:16 PM), <http://www.npr.org/templates/story/story.php?storyId=91819098> [<http://perma.cc/5GTP-P7LP>] (describing the confidential National Intelligence Assessment).

seriously affect U.S. national security interests.⁴³ Despite these developments, it was not until the Obama administration that the DoD undertook serious climate adaptation action in its own right.⁴⁴ This raises several relevant questions. First, what is the legal framework supporting such efforts? Second, what was the historical progression of these actions?

A. Legal Framework

While the totality of statutes, regulations, and executive orders that guide military actions are well beyond the focus of this Note, it is prudent to note legal sources of military authority to adapt to and prepare for climate threats. There is no statute that directly authorizes or commands military departments to take such measures,⁴⁵ nor one that requires them to report to Congress or the President the nature of such threats.⁴⁶ As the following section reveals, the military is legally authorized to undertake climate change adaptation measures due to the executive's direct control, as exercised through the Commander in Chief clause of the U.S. Constitution and through executive orders directing federal agencies to undertake certain actions. Adaptation efforts are supported by statutes that indirectly authorize or insulate these measures, such as the National Environmental Policy Act ("NEPA") and the Administrative Procedure Act ("APA").

43. "The study included input from all eighteen U.S. intelligence agencies . . . the classified assessment—unavailable to the public but on which Congress was briefed—concluded that climate change could . . . seriously affect U.S. national security interests." Freeman & Guzman, *supra* note 9, at 1575–76.

44. In addition to the examples of such action contained in this Note, it is worth noting that the DoD can be considered an important "validator of climate science" through the considerable effort described by those examples. See Sarah E. Light, *The Military-Environmental Complex*, 55 B.C. L. REV. 879, 918 (2014) (arguing that collaboration between the military and private industry on current environmental issues like climate change has resulted in a "Military-Environmental Complex" that scholars and policymakers must consider).

45. U.S. Code: Title 10 constructs and authorizes the U.S. Armed Forces, and U.S. Code: Title 50 contains authorizations and limits on War and National Defense. See 10 U.S.C. §§ 101–18506 (2012); 50 U.S.C. §§ 1–3618 (2012).

46. The Secretary of Defense is required by 10 U.S.C. § 113(c) to "report annually in writing to the President and the Congress on the expenditures, work, and accomplishments of the Department of Defense during the period covered by the report," along with other requirements mandated by U.S. Code: Title 50. 10 U.S.C. § 113(c) (2012); 50 U.S.C. § 3043 (2012).

1. The Commander in Chief Clause

The President is “Commander in Chief of the Army and Navy of the United States.”⁴⁷ A specific order from the President to the military departments made in the interests of national security would adhere to the powerful authority this clause grants.⁴⁸ The preclusive command of authority provides a convenient route through which the executive can construct climate change adaptation measures.⁴⁹ President Barack Obama’s administration has treated climate change as a serious policy item, and his actions have demonstrated his commitment to addressing it.⁵⁰ Given that climate change poses national security threats, it is unsurprising that this policy focus would translate into actions taken by the military departments. This commanding authority generally precludes Congressional interference,⁵¹ and thereby doubly supports the President’s ability to order the military to undertake a highly politicized action like climate change adaptation.⁵² However, the Commander in Chief does not have unlimited military control, and the continual evolution of climate change’s national security implications may test this role’s already unclear boundaries as they relate to military command.⁵³

47. U.S. Const. art. II, § 2, cl. 1.

48. However, the President is not Commander in Chief of the country. The debate over the precise extent of the President’s control over the military, particularly in peacetime, is ancient. See *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 643–44 (1952) (Jackson, J., concurring).

49. See generally David J. Barron & Martin S. Lederman, *The Commander in Chief at the Lowest Ebb—Framing the Problem, Doctrine, and Original Understanding*, 121 HARV. L. REV. 689 (2008) (examining the legitimacy of a preclusive Commander in Chief power).

50. The executive orders, military directives, and policy announcements described throughout this Note are just a few examples. See *infra* notes 55–62, 64–66 and accompanying text.

51. Julian G. Ku, *Is There an Exclusive Commander-in-Chief Power?*, 115 YALE L.J. POCKET PART 84, 85 (2006) (“The most sensible textual inference is to read the Commander-in-Chief clause as a constitutional constraint on the other two federal branches, especially Congress, from interfering with the President’s command of U.S. military forces.”).

52. In fact, the administration has taken a concerted effort to “call out the climate change deniers in Congress,” who do not agree with the relevant scientific consensus. See *Call out the Climate Change Deniers*, ORGANIZING FOR ACTION, <http://ofa.barackobama.com/climate-deniers/#/> [<http://perma.cc/9DAB-5CTG>] (last visited Aug. 14, 2015).

53. For a comprehensive discussion of the Commander in Chief’s constitutional ability to militarily respond to national security threats posed by climate change, see Mark Nevitt, *The Commander in Chief’s Authority to Combat Climate Change*, 37 CARDOZO L. REV. (forthcoming 2015), http://works.bepress.com/mark_nevitt/5 [<http://perma.cc/ENJ3-SSVR>].

2. Executive Orders

Because military departments are federal agencies, they are subject to the commands of Executive Orders.⁵⁴ Three executive orders, all from President Obama's administration, authorize the military to undertake adaptation measures autonomously.

Executive Order 13693, Planning for Federal Sustainability in the Next Decade, requires federal agencies to reduce energy use and cost, then implement renewable or alternative energy sources, in order to "increase efficiency and improve their environmental performance."⁵⁵ It further directs agencies to incorporate "climate-resilient design and management elements into the operation, repair, and renovation of existing agency buildings and the design of new agency buildings."⁵⁶ However, the order somewhat exempts military agencies, as "[t]he head of an agency may exempt . . . military tactical vehicle fleets of that agency from the provisions of this order" and shall manage such fleets in accordance with the Order's policy "to the extent they determine practicable."⁵⁷

Executive Order 13653, Preparing the United States for the Impacts of Climate Change, greatly expands the administrative focus on climate change adaptation. Whereas E.O. 13693 emphasizes greenhouse gas emission reduction, increased energy efficiency, and alternative energy development, E.O. 13653 calls for the creation of specific measures to adapt to climate change.⁵⁸ It demands that "each agency shall develop or continue to develop, implement, and update comprehensive plans that integrate consideration of climate change into agency operations and overall mission objectives and submit those plans to CEQ (Council on Environmental Quality) and OMB (Office of Management and

54. See Joshua D. Smeltzer, Comment, *Should Faith-Based Initiatives Be Implemented by Executive Order?*, 56 ADMIN. L. REV. 181, 184 (2004) ("Executive Orders are among the most common method of formal communication with executive agencies. Executive Orders began as a way of providing direction to federal agencies on various managerial topics.").

55. Exec. Order No. 13,693, 80 Fed. Reg. 15,871 (Mar. 19, 2015).

56. *Id.* § 3(h)(viii). "[R]esilience' means the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions." *Id.* § 3(w).

57. *Id.* § 18(c).

58. "[A]gencies should promote: (1) engaged and strong partnerships and information sharing at all levels of government; (2) risk-informed decisionmaking and the tools to facilitate it; (3) adaptive learning, in which experiences serve as opportunities to inform and adjust future actions; and (4) preparedness planning." Exec. Order No. 13,653, 78 Fed. Reg. 66,819 (Nov. 1, 2013).

Budget) for review.”⁵⁹ The required contents of the Agency Adaptation Plans mandated by E.O. 13653 are also expanded to include, *inter alia*, several descriptions:

- 1) “a description of programs, policies, and plans the agency has already put in place, as well as additional actions the agency will take, to manage climate risks in the near term and build resilience in the short and long term”;⁶⁰
- 2) “a description of how the agency will consider the need to improve climate adaptation and resilience . . . with respect to . . . updating agency policies for leasing, building upgrades, relocation of existing facilities and equipment, and construction of new facilities”;⁶¹ and
- 3) “a description of how the agency will contribute to coordinated interagency efforts to support climate preparedness and resilience at all levels of government”⁶²

Taken together, these executive orders form an extraordinary basis for the military to bolster the climate change resilience of its actions and facilities. Indeed, the Climate Adaptation Roadmap is designed to comply with these orders.⁶³

A third order is relevant to the military departments. Executive Order 13677, Climate-Resilient International Development, explicitly builds upon the two orders described above. Altogether these orders create “a strong foundation for coordinated and consistent action to incorporate climate-resilience considerations into policies and procedures throughout the Federal Government.”⁶⁴ E.O. 13677 is narrower in application than the other two orders described above, as it “requires the integration of climate-resilience considerations into all United States international development work to the extent permitted by law.”⁶⁵ Agencies involved in development work must integrate “climate-resilience considerations into international development strategies, planning, programming, investments, and related funding decisions, including the planning for and management of overseas facilities.”⁶⁶ This order thus requires climate risk accounting in

59. *Id.* § 5(a).

60. *Id.* § 5(a)(ii).

61. *Id.* § 5(a)(iv).

62. *Id.* § 5(a)(v).

63. U.S. DEP’T OF DEF., *supra* note 3, at 3.

64. Exec. Order No. 13,677, 79 Fed. Reg. 58,231, § 1 (Sep. 23, 2014), *amended by* Exec. Order No. 13,693, 80 Fed. Reg. 15,871 (Mar. 19, 2015).

65. *Id.*

66. *Id.*

U.S. agencies' activities in foreign nations, so long as those activities are related to development.

The military departments have a long history of participating in international development work, often in tandem with civilian agencies. The United States Agency for International Development ("USAID"), the lead federal agency in this field,⁶⁷ has worked alongside the DoD on development projects for years.⁶⁸ The DoD itself has undertaken development activities in the course of its military actions;⁶⁹ an example is the military's attempts to advance agricultural development in Afghanistan in the years following the U.S. invasion.⁷⁰ The military departments involved in standard development actions may therefore be characterized as having "direct international development programs and investments" in line with E.O. 13677.

3. The National Environmental Policy Act ("NEPA")

Passed in 1969 pursuant to broad environmental policy goals,⁷¹ NEPA⁷² is a procedural statute that requires federal agencies to

67. *Who We Are*, U.S. AGENCY FOR INT'L DEV., <http://www.usaid.gov/who-we-are> [<http://perma.cc/RBS8-9EDM>] (last visited Aug. 14, 2015).

68. In fact, USAID has an Office of Civilian-Military Cooperation ("CMC") which is the agency's primary point of contact with the DoD on their various collaborative projects. *See Office of Civilian-Military Cooperation*, U.S. AGENCY FOR INT'L DEV., <https://www.usaid.gov/military> [<https://perma.cc/F49G-TT8V>] (last visited Sept. 15, 2015).

69. "Our forces have stepped up to the task of long-term reconstruction, development and governance. The U.S. Armed Forces will need to institutionalize and retain these capabilities, but this is no replacement for civilian involvement and expertise." U.S. DEP'T OF DEF., NATIONAL DEFENSE STRATEGY 17 (2008), <http://www.defense.gov/Portals/1/Documents/pubs/2008NationalDefenseStrategy.pdf> [<http://perma.cc/LFE4-5WQ3>]; *see also* NINA M. SERAFINO, CONG. RESEARCH SERV., THE DEPARTMENT OF DEFENSE ROLE IN FOREIGN ASSISTANCE: BACKGROUND, MAJOR ISSUES, AND OPTIONS FOR CONGRESS 1 (2008), <http://www.fas.org/sgp/crs/natsec/RL34639.pdf> [<http://perma.cc/2BB8-PHV3>].

70. Alexander K. Stewart, *U.S. Army Agriculture Development Teams: A Grassroots Effort in Afghanistan Supporting Development and Tackling Insurgency*, SCI. & DIPLOMACY (Mar. 3, 2014), <http://www.sciencediplomacy.org/article/2014/us-army-agriculture-development-teams> [<http://perma.cc/X36A-8PRM>].

71. 42 U.S.C. § 4331 (2012) ("The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the natural environment . . . declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.").

72. 42 U.S.C. §§ 4321–70h (2012).

consider and disclose the potential environmental impacts of their own actions as well as those of private actors seeking permits. Specifically, NEPA requires federal agencies to consider *inter alia* the environmental impacts of the proposed action in an Environmental Impact Statement (“EIS”).⁷³ Conversely, consideration of the environment’s impacts on a project is a reverse EIS; this analysis is relevant to climate change adaptation because it prompts federal agencies to address likely climate impacts upon proposed infrastructure.⁷⁴ The extent to which NEPA requires reverse EIS analysis in general is unclear.⁷⁵ However, the military has taken the definitive step of addressing climate impacts upon its proposed facility developments in EISs,⁷⁶ and there are examples of non-military federal EISs that do the same.⁷⁷ Regardless, the DoD has demonstrated its intent to integrate NEPA requirements into its policy and planning in light of national security demands.⁷⁸ In line

73. 42 U.S.C. § 4332(C) (2012).

74. Michael Gerrard, *Reverse Environmental Impact Analysis: Effect of Climate Change on Projects*, 247 N.Y. L.J. 45 (Mar. 8, 2012).

75. There is no explicit requirement for reverse EISs, but provisions in the act may be interpreted as focusing on the impact of environment upon man rather than the opposite. *See, e.g.*, 42 U.S.C. § 4331(c) (2012) (“The Congress recognizes that each person should enjoy a healthful environment . . .”).

76. A July 2011 instruction from the Office of the Chief of Naval Operations (“OPNAV”) orders the integration of climate change impacts into Environmental Assessments (“EA”) and EISs created pursuant to NEPA. *See* U.S. DEP’T OF THE NAVY, OPNAV INSTRUCTION 5090.1C, ENVIRONMENTAL READINESS PROGRAM MANUAL ¶ 5-2 (July 18, 2011). The Department of the Navy (“DON”) has taken the lead role in preparing an EIS, currently in the draft stage, which considers the environmental effects of relocating approximately 5,000 Marine Corps personnel with 1,300 dependents to Guam and constructing facilities for them. The EIS specifically addresses the possible impacts of climate change upon the project, and considers necessary adaptation measures. U.S. DEP’T OF THE NAVY, DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT: GUAM AND COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS MILITARY RELOCATION (2012 ROADMAP ADJUSTMENTS) 7.8.1.1 (2014), http://guammarines.s3.amazonaws.com/static/draftSEIS/Guam_Draft_SEIS_APR_2014_CD.pdf [<http://perma.cc/6VFL-JYF2>] (“Projections made for Guam indicate that sea level rises of up to 39 inches (100 cm) would result in a few low lying areas of Apra Harbor being inundated. The DON acknowledges there is the potential for existing and future coastal facilities to be adversely affected by sea level rise, inundations from more extreme storm events, and other consequences of climate change. . . . As new design criteria relevant to climate change are adopted by the DON, they will be incorporated into project designs. Harbor projects on Guam are designed to include tsunami, typhoon, wind, and earthquake conditions.”).

77. These include a 2011 EIS for a bridge and highway proposal in Vancouver, Washington and a 2009 EIS for a highway construction project in Cleveland, Ohio. *See* Gerrard, *supra* note 74.

78. “DoD activity and operational planning should fully consider the environmental consequences of proposed actions in conjunction with national security requirements and

with this policy and its treatment of climate change as a threat multiplier, the military should take account of climate impacts upon its projects in the reverse analysis fashion as well.⁷⁹

4. The Administrative Procedure Act (“APA”)

Another statute is relevant to military climate change adaptation efforts. Military departments are federal agencies; their authority comes under the scope of the APA,⁸⁰ although several exemptions apply.⁸¹ The APA’s requirement for agencies to provide notice and an opportunity for comment⁸² during their rulemaking processes and its adjudication provisions⁸³ do not apply to “military or foreign affairs functions.”⁸⁴ The decision-making processes within military agencies are thus more insulated from public opinion than those within civilian agencies; this insulation is useful for permitting timely and efficient action on a politicized issue like climate change.

The APA defines the standard for judicial review of agency actions.⁸⁵ Typically, courts confer considerable deference upon

other considerations of national policy.” U.S. DEP’T OF DEF., DOD INSTRUCTION 4715.9, ENVIRONMENTAL PLANNING AND ANALYSIS § 4 (1996), <http://denix.osd.mil/nepa/upload/471509p.pdf> [<http://perma.cc/BUH9-SQEH>].

79. However, NEPA requirements may be inapplicable to the military under certain emergency circumstances, thus limiting the statute’s forcefulness. *See* 40 C.F.R. § 1506.11 (2015) (recognizing that emergency circumstances may “make it necessary to take an action with significant environmental impact without observing the provisions of these regulations” and that the relevant agency should “should consult with the Council about alternative arrangements”); *see also* *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 18–19 (2008) (recounting that the CEQ applied the emergencies exception to the Navy); *see generally* Light, *supra* note 44, at 890. *But cf.* *Concerned About Trident v. Rumsfeld*, 555 F.2d 817, 823 (D.C. Cir. 1976) (holding that NEPA applies to the Navy and that there is no broad national defense exemption under NEPA generally).

80. Gabriel W. Gorenstein, *Judicial Review of Constitutional Claims Against the Military*, 84 COLUM. L. REV. 387, 423 (1984).

81. In addition to the examples that follow but less relevant to this Note, the APA definition of agency does not include “military authority exercised in the field in time of war or in occupied territory.” 5 U.S.C. § 701(b)(1)(G) (2012).

82. *See* 5 U.S.C. § 553 (2012).

83. *See* 5 U.S.C. § 554 (2012).

84. 5 U.S.C. §§ 553(a)(1), 554(a)(4) (2012); *see* Thomas R. Folk, *The Administrative Procedure Act and the Military Departments*, 108 MIL. L. REV. 135, 141 (1985) (“Both 5 U.S.C. [553], which relates to agency rulemaking, and 5 U.S.C. [554], which relates to formal, “on the record,” agency adjudications, exempt ‘military functions’ from their coverage.”).

85. Judicial Review under the APA is described by 5 U.S.C. §§ 701–06. The most common standard of review is described in § 706(2)(A): to be overturned, the agency action

agencies.⁸⁶ However, thanks to established judicial recognition of executive expertise in national security matters, courts reviewing military department decisions under the APA may show the agency extraordinary deference, surpassing even that provided to non-military agencies.⁸⁷ Even constitutional claims against the military face a higher legal standard than those against other federal agencies.⁸⁸ This considerable insulation from judicial review means that military decisions in the realm of climate change adaptation might be “safer” than those undertaken by a civilian agency.

Through executive authority and the contours of these statutes, the military is capable of undertaking climate change adaptation measures. While executive orders apply to all agencies, DoD actions taken to comply with the orders are substantially more insulated from public and judicial review than actions taken by civilian agencies.

B. Naval Focus on the Changing Arctic

The Navy’s recognition of climate change impacts in the Arctic, and the attendant national security implications of those impacts, serves as a prime example of a military agency’s efforts to develop and apply specialized expertise toward climate change adaptation.

must be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A) (2012).

86. See, e.g., *United States v. Mead Corp.*, 533 U.S. 218, 226–27 (2001) (“[A]dministrative implementation of a particular statutory provision qualifies for Chevron deference when it appears that Congress delegated authority to the agency generally to make rules carrying the force of law.”); *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 844–45 (1984) (holding that permissible agency interpretations of empowering statutes deserve deference); *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944) (holding that administrative actions pursuant to empowering statutes deserve deference to the extent that they are thorough, valid, consistent, and have the “power to persuade”).

87. See Kathryn E. Kovacs, *Leveling The Deference Playing Field*, 90 OR. L. REV. 583, 600 (2011) (“The courts’ practice of giving the military super-deference in APA cases also undermines two of the APA’s basic goals—enhancing uniformity and augmenting judicial review”); see also Jonathan Masur, *A Hard Look or a Blind Eye: Administrative Law and Military Deference*, 56 HASTINGS L.J. 441, 444 (2005) (“[C]ourts have relied on the expertise and experience of the President and the military in dealing with issues of national security to a degree far out of proportion with their concomitant reliance upon the competence of civilian administrative agencies.”).

88. Gorenstein, *supra* note 80, at 387 (“Rather than applying only traditional justiciability standards and then proceeding to a review on the merits, [most lower federal courts] have applied a balancing test . . . requir[ing] that a court refuse to review a claim against the military when the plaintiff’s interest does not outweigh the costs of the intrusion into military affairs.”).

May 2009 saw significant military mobilization on climate change when the Chief of Naval Operations (“CNO”)⁸⁹ directed the Oceanographer of the Navy to establish and lead Task Force Climate Change (“TFCC”).⁹⁰ TFCC’s immediate goals were to complete an Arctic Roadmap describing the Navy’s action in that region, and to “begin addressing the broader climate change issue.”⁹¹ Supporting this plan, TFCC’s charter displays unequivocal acceptance of scientific consensus regarding climate change: “The continuing loss of sea ice implies that an increasing extent of the Arctic will be navigable for longer durations during the summer,” totaling approximately four weeks of ice-free access in the 2030s.⁹² According to the charter, in light of the United States’ position as an Arctic nation, and “the observed increasing access, interest, and resource extraction, the Navy must consider the Arctic and climate change in its future policy, strategy, force structure, and investments.”⁹³

These developments show that less than one year into President Obama’s first term, and approximately five years prior to Secretary Hagel’s statement in October 2014, a military department had begun organizing resources to assess climate change repercussions and adaptation in the long term. And the effort was by no means temporary: TFCC is a permanent organization under the Office of the Chief of Naval Operations (“OPNAV”), and the charter itself remains “in effect until superseded by a Navy Arctic/Climate Change Policy Instruction or dissolved by the Executive Steering Committee.”⁹⁴

In November 2009, TFCC achieved its primary short term goal and released the first Arctic Roadmap, “designed to promote studies and assessments to help the Navy better understand the

89. The CNO is a presidential-appointed position subordinate to the Secretary of the Navy (“SECNAV”). See 10 U.S.C. § 5033 (2012). The Defense Reorganization Act of 1958 deemphasized the military command authority of the CNO. Arleigh Burke, *The Reorganization Act of 1958*, JAG J., Oct. 1958, at 3. The SECNAV is chief executive officer of the Department of the Navy and by statute must be a civilian. 10 U.S.C. § 5013 (2012).

90. J.W. GREENERT, TASK FORCE CLIMATE CHANGE 1 (2009), <http://greenfleet.dodlive.mil/files/2010/09/Task-Force-Climate-Change-Charter.pdf> [<http://perma.cc/ML4A-M9UE>]; see also U.S. DEP’T OF THE NAVY, OPNAV INSTRUCTION 5420.108D (2011) (providing specifications of TFCC under the executive decision making framework of the CNO).

91. GREENERT, *supra* note 90, enclosure at 2, 8.

92. *Id.*, enclosure at 1.

93. *Id.*

94. *Id.*, enclosure at 9.

changing environment and its impact on future readiness, and to capture the challenges of high latitude naval operations.”⁹⁵ The advantages in relying on the Navy to construct this roadmap lie in the Navy’s longstanding history with the Arctic, including campaigns throughout World War II and the Cold War, as well as ongoing exercises in the region.⁹⁶ Such familiarity exemplifies the administrative expertise that allows agencies to contour their actions with great precision and efficacy.

In November 2013, the Secretary of Defense published the Department of Defense Arctic Strategy, which “recognizes the role that the Arctic region will play in shaping the global security environment in the twenty-first century.”⁹⁷ In that document, the DoD articulated its “desired end-state for the Arctic [as] a secure and stable region where U.S. national interests are safeguarded [and] the U.S. homeland is protected”⁹⁸ The DoD strategy explicitly recognizes the necessity of addressing risks and threats in the region as they develop over time, especially as the increasingly navigable Arctic becomes an area of great strategic importance.⁹⁹

Per the request of Admiral Jonathan Greenert, CNO from September 2011 onward, TFCC updated the Arctic Roadmap in 2014 to serve as a plan that “outlines the Navy’s strategic approach for the Arctic Region and the ways and means to achieve the desired national end state.”¹⁰⁰ Whereas the initial Arctic Roadmap focuses on research and analysis of the rapid change in the Arctic, the updated document more strongly invokes national security challenges, contingencies, and policy directives regarding a region heavily malleable to climate change. Published in February 2014, the updated Roadmap implicitly recognizes the link between national security and climate change, foreshadowing, through the

95. *Arctic and Maritime Security*, U.S. NAVY: ENERGY, ENV’T & CLIMATE CHANGE, <http://greenfleet.dodlive.mil/climate-change/arctic-and-maritime-security> [http://perma.cc/KJP8-2KK6] (last visited Aug. 14, 2015).

96. U.S. NAVY, U.S. NAVY ARCTIC ROADMAP 6 (2009), <http://greenfleet.dodlive.mil/files/2010/08/US-Navy-Arctic-Roadmap-11-10-09.pdf> [http://perma.cc/53VD-WZF9].

97. U.S. DEP’T OF DEF., ARCTIC STRATEGY 1 (2013), http://www.defense.gov/pubs/2013_Arctic_Strategy.pdf [http://perma.cc/L2EX-4ZDY].

98. *Id.* at 2 (emphasis omitted).

99. *Id.* at 12–13.

100. U.S. NAVY, U.S. NAVY ARCTIC ROADMAP FOR 2014 TO 2030 4 (2014), http://www.navy.mil/docs/USN_arctic_roadmap.pdf [http://perma.cc/GHC3-3ERS].

example of the Arctic, the subject of Secretary Hagel's press release in October of the same year.¹⁰¹

Of particular relevance to this Note is the Arctic Roadmap's emphasis on collaboration with agencies outside of the Department of Defense. A major action item in the original Roadmap demands the development of a Navy Arctic Outreach and Engagement Plan.¹⁰² Updated every two years, the plan identifies "organizations the Navy will inform, be informed by, and partner with for achieving the objectives and desired effects of this roadmap."¹⁰³ Though the action item details a scheme of relationships focused on informational exchange rather than partnered projects per se, the civilian agencies listed therein indicate the possibility and recognition of fruitful partnerships between military and non-military assets in approaching a task as vast as climate change adaptation.¹⁰⁴ Much of the value in such partnerships derives from regularizing the exchange of specialized information, expertise, and technology that each agency possesses. This aligns with TFCC's self-description as an organization that "runs across multiple Navy Staff codes and warfare enterprises" and "invites advisory participants from interested Joint and interagency stakeholders."¹⁰⁵

101. "The United States' overarching strategic national security objective for the Arctic Region is a stable and secure region where the national interests of the United States are safeguarded and the homeland is protected. The Navy's primary goal in support of National and Department of Defense aims is to contribute to a peaceful, stable, and conflict-free Arctic Region." *Id.* at 6 (footnote omitted).

102. U.S. NAVY, *supra* note 96, at 17.

103. *Id.*

104. "These organizations will include but not be limited to: White House Office of Science and Technology Policy (OSTP), Council on Environmental Quality (CEQ); Commission on Ocean Policy; Department of State's Arctic Policy Group; Department of Energy; NOAA; U.S. Coast Guard; NASA; USGS; National Geospatial Intelligence Agency (NGA)." *Id.*

105. *Id.* at 5. These stakeholders include U.S. Northern Command ("NORTHCOM"); Commander, Pacific Fleet ("COMPACFLT"); U.S. European Command ("EUCOM"); the Office of Naval Research ("ONR"); the National Maritime Intelligence Center ("NMIC"); U.S. Coast Guard Headquarters; the National Oceanic and Atmospheric Administration ("NOAA"); the Office of the Secretary of Defense ("OSD"); the Office of the Chairman of the Joint Chiefs of Staff ("CJCS"); and the Center for Naval Analyses ("CNA"). *See also* Joan L. Malik, *United States Environmental Law Applied in the Arctic Ocean: Frustrating the Balance of the Law of the Sea, National Sovereignty, and International Collaboration Efforts*, 60 NAVAL L. REV. 41, 49–55 (2010) (providing an overview of federal agency activities in the Arctic and arguing that the presence of such agencies will increase in the future).

C. Publicized Adaptation Policy: Quadrennial Defense Reviews and Climate Change Roadmaps

From approximately 2010 on, the DoD developed a strong, publicized policy focus on climate change that extended beyond Arctic activities and internal adaptation measures. 2010 was a delivery year for the congressionally mandated Department of Defense Quadrennial Review (“QDR”).¹⁰⁶ The document devotes a significant amount of space to climate change,¹⁰⁷ which was absent from the 2006 QDR.¹⁰⁸ The 2010 QDR calls for collaboration between the DoD and domestic agencies to create tools for climate change assessment,¹⁰⁹ as well as increased investment “in the Defense Environmental International Cooperation Program . . . to promote cooperation on environmental security issues [and] augment international adaptation efforts.”¹¹⁰ This language again demonstrates the military’s emphasis on partnering with civilian and international stakeholders to begin tackling climate change.

TFCC soon after promulgated the U.S. Navy Climate Change Roadmap in May 2010. The Roadmap calls climate change a “national security challenge with strategic implications for the Navy,” that will “lead to increased tensions in nations with weak economies and political institutions.”¹¹¹ The Roadmap represents an expansion from the previously pinpointed focus on critical areas

106. QDRs were first mandated by the 1997 National Defense Authorization Act (“NDAA”). National Defense Authorization Act for Fiscal Year 1997, Pub. L. No. 104-201, § 922, 110 Stat. 2422, 2624 (1996) (“The Secretary of Defense endorsed the concept of conducting a quadrennial review of the defense program at the beginning of each newly elected presidential administration.”). Soon thereafter, the QDR mandate was codified. *See* 10 U.S.C. § 118 (Supp. 2014) (originally codified in 1999).

107. The 2010 QDR outlines two broad ways in which climate change will affect the DoD. “First, climate change will shape the operating environment, roles, and missions that we undertake. . . . Second, DoD will need to adjust to the impacts of climate change on our facilities and military capabilities.” U.S. DEP’T OF DEF., QUADRENNIAL DEFENSE REVIEW REPORT 84–85 (2010) [hereinafter 2010 QDR], http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf [<http://perma.cc/7K98-9FQU>].

108. *See* U.S. DEP’T OF DEF., QUADRENNIAL DEFENSE REVIEW REPORT (2006), http://archive.defense.gov/Home/features/2014/0314_sdr/qdr/docs/Report20060203.pdf [<http://perma.cc/8DC9-9W2L>].

109. “[T]he Department will leverage the Strategic Environmental Research and Development Program, a joint effort among DoD, the Department of Energy, and the Environmental Protection Agency, to develop climate change assessment tools.” 2010 QDR, *supra* note 107, at 86.

110. *Id.*

111. U.S. NAVY, CLIMATE CHANGE ROADMAP 3 (2010), www.navy.mil/navydata/documents/CCR.pdf [<http://perma.cc/JCB3-63UL>].

such as Arctic access and energy efficiency to an overarching analysis of climate change adaptation in its broader dimensions.

A strong focus on climate change per se was apparent within the DoD in 2014. March saw the release of that year's congressionally mandated DoD Quadrennial Defense Review, which recognizes climate threats.¹¹² It calls for the DoD to find "creative ways to address the impact of climate change, which will continue to affect the operating environment and the roles and missions that U.S. Armed Forces undertake."¹¹³

In April 2014, Secretary Hagel hosted an unprecedented roundtable discussion with the ten defense ministers from the Association of South East Asian Nations ("ASEAN") in Honolulu, Hawaii, one of the goals being to "identify how [United States and ASEAN] militaries can work together more effectively to tackle non-traditional security challenges, including climate change and natural disasters."¹¹⁴ Indeed, it was arguably around this time that the DoD became identifiable as a powerful, well-funded actor in the international space that integrates climate change considerations into its planning and strategy.¹¹⁵ This ethos and the momentum of these developments culminated in the publication of the Climate Adaptation Roadmap in October.

D. Findings and Conclusions

The foregoing analysis leads to several conclusions about the military's implementation of climate change adaptation measures. First, the executive branch has considerable control over military

112. U.S. DEP'T OF DEF., QUADRENNIAL DEFENSE REVIEW REPORT, at I (2014), http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf [<http://perma.cc/DCY8-2JAS>]. This QDR builds on the 2010 QDR, which likewise recognizes climate threats. See 2010 QDR, *supra* note 107, at 83–87.

113. U.S. DEP'T OF DEF., *supra* note 112, at 25.

114. John Podesta, *Combating Climate Change: Secretary Hagel Hosts the U.S.-ASEAN Defense Forum*, WHITE HOUSE BLOG (Apr. 3, 2014, 12:52 PM), <http://www.whitehouse.gov/blog/2014/04/03/combating-climate-change-secretary-hagel-hosts-us-asean-defense-forum> [<http://perma.cc/W5KR-X8DY>].

115. *Id.* ("During the Obama Administration, DoD has focused on adapting to and mitigating the effects of climate change. DoD invests in energy efficiency, new technologies, and renewable energy sources at its installations because it helps service members carry out their mission. . . . And because DoD knows that climate change is already underway, it is assessing its coastal and desert installations to ensure they will be resilient in the future. These initiatives all support President Obama's Climate Action Plan, which outlines how the United States will work with the international community in addressing these serious global challenges.").

actions and policy. Second, in parallel with the executive's strong control, judicial and congressional interference in military matters is more limited. Third, the military apparatus is expert in certain climate change adaptation techniques, though it has limited experience in others. For example, military technology, generally sophisticated and specialized, can be developed for climate change adaptation purposes.

1. Executive Control

The executive possesses strong authority over the actions of the military. The Commander in Chief Clause provides an extraordinary, though not exclusive, amount of military control, which Congress shares in but cannot entirely obstruct in regard to national security threats.¹¹⁶ However, the debate over the President's authority to command armed forces in times of peace is longstanding.¹¹⁷ Fortunately for the executive, the President may also exercise control over the military departments due to their status as federal executive agencies.¹¹⁸ The President's control over federal agencies, as creatures of the executive branch, is well established.¹¹⁹ In addition to other obvious and particularized forms of agency control,¹²⁰ the President's ability to issue executive orders allows him an additional means of sweeping control over the military departments. This broad direction will redouble the basis on which the military can act to address national security threats

116. Only Congress can legally declare a war. See U.S. CONST. art. I, § 8, cl. 11; see also Stephen L. Carter, *The Constitutionality of the War Powers Resolution*, 70 VA. L. REV. 101, 101-02 (1984) (arguing that the War Powers Resolution is reasonable and constitutional). *But cf.* War Powers Resolution, 50 U.S.C. §§ 1541-48 (2012). It is Congress that specifies the DoD budget and expenses annually through the NDAA. See, e.g., National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66, 127 Stat. 672 (2013).

117. See generally *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 643-44 (1952) (Jackson, J., concurring); see also *Commander in Chief Powers*, CORNELL U.L. SCH., https://www.law.cornell.edu/wex/commander_in_chief_powers [http://perma.cc/779U-7CMP] (last visited Aug. 14, 2015).

118. See Gorenstein, *supra* note 80, at 423.

119. See Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2248 (2001) (arguing that presidential control over the administrative state expanded under President Clinton).

120. See generally Peter L. Strauss, *The Place of Agencies in Government: Separation of Powers and the Fourth Branch*, 84 COLUM. L. REV. 573 (1984) (outlining the qualities of presidential direction of executive agencies but highlighting practical and political limitations on that coordination).

posed by climate change, even if the President's control over the military as Commander in Chief is contested in this context.

2. Insulation from Congress and the Judiciary

An unusual advantage of the military departments, and subsequently their climate adaptation efforts, is the insulation they enjoy from interferences by the other two federal branches: Congress and the judiciary. Though Congress does have sway over the operations and composition of the armed forces,¹²¹ its ability to influence their military directives and policy goals is secondary to the executive's Commander in Chief authority.¹²² This separation of powers would apply to the military's climate adaptation measures as well. Insulation of this nature would prove useful—and raise serious constitutional questions¹²³—were Congress to enact legislation forbidding the DoD from adapting to, or researching, climate change.¹²⁴

121. See U.S. CONST. art. I, § 8, cl. 18 (empowering Congress “[t]o make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers, and all other Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof”); U.S. CONST. art. I, § 8, cl. 12–16 (empowering Congress “[t]o raise and support Armies,” “[t]o provide and maintain a Navy,” “[t]o make Rules for Government and Regulation of the land and naval Forces,” “[t]o provide for calling forth the Militia to execute the Laws of the Union, suppress Insurrections and repel Invasions,” and “[t]o provide for organizing, arming and disciplining the Militia”).

122. See Ku, *supra* note 51; see also James A. Berkai, *Legislating Military Doctrine: Congressional Usurping of Executive Authority Through Detainee Interrogations*, 193 MIL. L. REV. 97, 115 (arguing that Article I, Section 8, Clause 11 of the U.S. Constitution “should not be interpreted as the definitive declaration of authority over the military, when in fact it is only an implementing measure to ensure that the other branches have the requisite authority to carry out their powers”).

123. See, e.g., Carter, *supra* note 116.

124. The House of Representatives attempted to do exactly this by passing an amendment to the National Defense Authorization Act for Financial Year 2015, sponsored by Rep. David B. McKinley (R-WV). See Kate Sheppard, *House Directs Pentagon to Ignore Climate Change*, HUFFINGTON POST (May 23, 2014, 6:37 PM), http://www.huffingtonpost.com/2014/05/23/pentagon-climate-change_n_5382067.html [<http://perma.cc/5MYR-J3TG>]. The amended NDAA text provided that “[n]one of the funds authorized to be appropriated or otherwise made available by this Act may be used to implement the U.S. Global Change Research Program National Climate Assessment, the Intergovernmental Panel on Climate Change’s Fifth Assessment Report, the United Nation’s [sic] Agenda 21 sustainable development plan, or the May 2013 Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866.” H.R. 4435, 113th Cong. § 320A (as passed by House of Representatives, May 22, 2014). The amendment was not included in the final NDAA enactment approved in both the House and Senate. See National Defense Authorization Act for Fiscal Year 2015, Pub. L. No. 113-291, 128 Stat. 3292 (2014).

Federal agencies enjoy considerable deference in executing their statutory mandates.¹²⁵ As explained above, court claims against military actions by civilians under tort law or the APA face a higher legal standard than those against other federal agencies,¹²⁶ which already enjoy considerable deference in court.¹²⁷ Given this enhanced deference, it would be difficult to overturn a military action in court, thus equipping the armed forces with considerable insulation from the judiciary. Enhanced deference will allow the military greater leeway in implementing climate change adaptation maneuvers if the legitimacy or legality of such actions is contested in court.

3. Military Expertise and Resources

As the above sections show, the military apparatus has for years recognized that climate change poses threats to national security. It has already undertaken significant measures in the Arctic specifically and across its global installations generally, and it is developing expertise in the field of climate change adaptation. The recent, years-long focus on the Arctic region, in which the Navy and the DoD have undertaken to redefine their role in response to rapid change, demonstrates competence in assessing and responding to climate threats well in advance of serious climatic changes.

The military has a clear focus on efficiency,¹²⁸ and is characteristically forward looking in its action.¹²⁹ A present move on adaptation will likely save national funds in the long run.¹³⁰ As

125. See, e.g., *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 844–45 (1984).

126. See, e.g., Masur, *supra* note 87.

127. See, e.g., Kovacs, *supra* note 87; Gorenstein, *supra* note 80.

128. “The [Navy Arctic and Climate Change] Roadmaps emphasize low-cost, long-lead activities that position the Navy to meet future demands, and cooperative activities with interagency and international partners to share capabilities, reduce cost, and maximize efficiency.” *Climate Change*, U.S. NAVY: ENERGY, ENV’T & CLIMATE CHANGE, <http://greenfleet.dodlive.mil/climate-change/> [<http://perma.cc/MYN2-YVJ5>] (last visited Aug. 14, 2015).

129. “The Department of Defense plans for everything, and particularly for potential changes in ‘the battlespace,’ the geography in which we operate.” David Titley, *Climate Change Series: Global Warming a Threat to National Security*, COGNOSCENTI (Feb. 20, 2013), <http://cognoscenti.wbur.org/2013/02/20/climate-national-security-david-titley> [<http://perma.cc/9YXC-YN8F>].

130. See, e.g., Andrea Shalal & Ayesha Rascoe, *U.S. Needs to Invest in Arctic Ships, Technology to Prepare for Climate Change*: *Envoy*, REUTERS (Oct. 21, 2014, 7:41 PM),

the DoD noted in its 2010 QDR, “[t]he actions that the Department takes now can prepare us to respond effectively to these challenges in the near term and in the future.”¹³¹ Because the DoD is responsible for preserving the nation in the event of national security threats and crises, it cannot afford to be retroactive. Preparing for future impacts in the present is cost-effective, and will preserve human life that might otherwise be unnecessarily lost to weather events and disease exacerbated by climate change.

The military apparatus is particularly well suited for coastal adaptation measures that can readily be applied to climate adaptation ends. It holds considerable expertise in the construction of seawalls, dikes and levees, bulkheads, and breakwaters, all of which can protect dry land from rising sea levels and enhanced tidal movement.¹³² The U.S. Army Corps of Engineers (“USACE”)¹³³ is the leading federal agency on flood control and partners with several agencies, domestic and international, as well as civilian entities, to maximize flood risk management.¹³⁴ Indeed, the USACE represents military expertise on national disasters generally,¹³⁵ and, as relevant to climate

<http://www.reuters.com/article/2014/10/21/us-usa-arctic-navy-climatechange-idUSKCN0IA2S520141021> [<http://perma.cc/5SFU-NSVF>].

131. 2010 QDR, *supra* note 107, at 84.

132. See *Seawalls*, U.S. ARMY CORPS ENGINEERS, <http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=ARTICLES;140&g=41> [<http://perma.cc/P36R-85RP>] (last visited Aug. 14, 2015).

133. USACE is a federal agency under the DoD and command of the Army that handles public and military engineering projects. The USACE is, of course, subject to NEPA. In addition to overseeing its own construction projects, USACE controls permitting for private projects situated on United States waters. See *About Us*, U.S. ARMY CORPS ENGINEERS, <http://www.usace.army.mil/About.aspx> [<http://perma.cc/K6LD-HN8R>] (last visited Aug. 14, 2015). USACE also coordinates with the Federal Emergency Management Agency (“FEMA”) on domestic levee maintenance. See *USACE/FEMA/Community Partnership*, U.S. ARMY CORPS ENGINEERS, <http://www.usace.army.mil/Missions/CivilWorks/LeveeSafetyProgram/USACEFEMACommunityPartnership.aspx> [<http://perma.cc/SMD2-843N>] (last visited Oct. 9, 2015).

134. See *Flood Risk Management Program*, U.S. ARMY CORPS ENGINEERS, <http://www.iwr.usace.army.mil/Missions/FloodRiskManagement/FloodRiskManagementProgram.aspx> [<http://perma.cc/BMR6-JRYU>] (last visited Aug. 14, 2015); see also *Flood Protection Structure Accreditation Task Force*, U.S. ARMY CORPS ENGINEERS, <http://www.usace.army.mil/Missions/CivilWorks/LeveeSafetyProgram/> [<http://perma.cc/NG8T-U5J5>] (last visited Aug. 14, 2015).

135. See *Emergency Response*, U.S. ARMY CORPS ENGINEERS, <http://www.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/219/Article/475476/emergency-response.aspx> [<http://perma.cc/YR2E-4427>] (last visited Aug. 14, 2015).

change, the provision of emergency water supplies in the event of a major drought.¹³⁶

Climate change events may require emergency evacuation measures. The U.S. armed forces have long assisted civilian populations at home and abroad to relocate away from unstable environments, and have thereby developed stringent procedures for evacuation activities.¹³⁷ This established framework could easily be used to evacuate citizens with limited mobility out of areas highly threatened by weather events enhanced by climate change.

While the military is particularly well suited to employ the above adaptation measures for either its own or civilian purposes, other likely climate impacts are outside the military's expertise. Among these are adaptation to: desertification,¹³⁸ invasive animal and plant species and their effects on local or continental ecology,¹³⁹ and extreme heat that makes outdoor work hazardous.¹⁴⁰

In general, military capital is vast, sophisticated, and mobile.¹⁴¹ High-end, reliable technology is necessary for assessing and responding to the various climate impacts that will affect the world.

136. See *Drought*, U.S. ARMY CORPS ENGINEERS, <http://www.usace.army.mil/Missions/EmergencyOperations/Drought.aspx> [<http://perma.cc/P5PR-CCL4>] (last visited Aug. 14, 2015).

137. JOINT CHIEFS OF STAFF, JOINT PUBLICATION 3-68, NONCOMBATANT EVACUATION OPERATIONS, at ix (2007), <https://www.fas.org/irp/doddir/dod/jp3-68.pdf> [<http://perma.cc/8AQQ-32DK>] ("Noncombatant evacuation operations (NEOs) are conducted to assist the Department of State (DOS) in evacuating U.S. citizens, Department of Defense (DOD) civilian personnel, and designated host nation (HN) and third country nationals whose lives are in danger from locations in a foreign nation to an appropriate safe haven. Although normally considered in connection with hostile action, evacuation may also be conducted in anticipation of, or in response to, any natural or manmade disaster.").

138. See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: IMPACTS, ADAPTATION, AND VULNERABILITY 517 (2001), http://www.grida.no/climate/ipcc_tar/wg2/pdf/wg2TARchap10.pdf [<http://perma.cc/7K4L-FHBV>]; see also *Desertification*, UNITED NATIONS, <http://www.un.org/en/events/desertificationday/background.shtml> [<http://perma.cc/8EMK-DYB4>] (last visited Aug. 14, 2015).

139. "Climate change is likely to increase opportunities for invasive alien species because of their adaptability to disturbance." See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, WORKING GROUP II: IMPACTS, ADAPTATION AND VULNERABILITY 247 (2007), http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4_wg2_full_report.pdf [<http://perma.cc/GNH8-PFDF>].

140. See generally *id.*

141. The body of work produced by the Defense Advanced Projects Research Agency ("DARPA"), which is also situated under the DoD, exemplifies the breakthrough technologies designed for national security purposes. *About*, DARPA, <http://www.darpa.mil/about-us/about-darpa> [<http://perma.cc/3CXK-BX79>] (last visited Oct. 9, 2015).

The military is well suited to confront such challenges. The Navy's technological resources are tuned to climate threats in the Arctic specifically and across the world in general. In regards to the "national enterprise to better understand the nature of the changing climate," the Navy has numerous assets to contribute, including "environmental sensors that operate underwater, in the air, and from space, sophisticated global computer models, and supercomputers that process sensed data and host the models."¹⁴² Notably, the Navy operates one of the largest oceanographic databases in the world.¹⁴³

Advancing military technology towards adaptive ends is somewhat facilitated by the judiciary. Private companies developing military technology enjoy a longstanding defense against state tort claims for defective product design.¹⁴⁴ This defense would presumably drive down the cost of climate change adaptation technology produced specifically for military purposes, at least initially, and hasten its development.¹⁴⁵

These findings show that the military is capable of decisive action as directed by the executive, and is more insulated from congressional and judicial interference than civilian agencies. The military also possesses the expertise and technology to undertake climate adaptation measures, having developed a tremendous

142. *Assessment and Prediction*, U.S. NAVY: ENERGY, ENV'T & CLIMATE CHANGE, <http://greenfleet.dodlive.mil/climate-change/assessment-and-prediction/> [http://perma.cc/2YR5-8T55] (last visited Aug. 14, 2015).

143. *Id.* An additional example may be seen in the Air Force Weather Agency, which "contributes earth-space environmental data, receiving nearly 500,000 weather observations and satellite-derived wind profiles each day and sharing these data with the National Climatic Data Center and the Navy's Fleet Numerical Meteorological and Oceanographic Center." U.S. DEP'T OF DEF., *supra* note 3, at 12.

144. *See Boyle v. United Techs. Corp.*, 487 U.S. 500, 512 (1988) (holding that state product liability claim against contractor for defective design is preempted when (1) the United States approved reasonably precise specifications; (2) the equipment conformed to those specifications; and (3) the supplier warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States). Although the defense may only apply to specialized military technology. *See In re Haw. Fed. Asbestos Cases*, 960 F.2d 806, 812 (9th Cir. 1992) (holding the defense is limited to specialized military equipment, and does not apply to commercial products); *Nielsen v. George Diamond Vogel Paint Co.*, 892 F.2d 1450, 1453-55 (9th Cir. 1990) (stating defense does not apply to non-military products). *But see Carley v. Wheeled Coach*, 991 F.2d 1117, 1119 (3d Cir. 1993) (stating defense applies to both military and nonmilitary contractors).

145. *See Boyle*, 487 U.S. at 511-12; *see also* John L. Watts, *Differences Without Distinctions: Boyle's Government Contractor Defense Fails to Recognize the Critical Differences Between Civilian and Military Plaintiffs and Between Military and Non-Military Procurement*, 60 OKLA. L. REV. 647, 661-66 (2007).

amount of expertise resources in certain types of adaptation, though its experience in others is limited.

IV. THE U.S. MILITARY AS A GLOBAL LEADER IN ADAPTATION: RECOMMENDATIONS, JUSTIFICATIONS, AND POTENTIAL RESPONSES AND CRITICISMS

The U.S. military apparatus would be particularly well suited to act as a vehicle for international outreach and development in the furtherance of global adaptation efforts. Domestically, the military's expertise and resources could be directed toward civilian adaptation efforts. These recommendations align with current executive and DoD policy and growing capabilities as regards climate change adaptation efforts in the United States and worldwide. However, such an expansion of the military's role is vulnerable to oppositional political forces; congressional limitations might hamper military adaptation efforts, while a subsequent presidential administration could potentially reverse the military's adaptation progress.

A. Recommendations

Given the considerable amount of effort the military apparatus has dedicated to climate change research and adaptation, we can presume that it is legally and logistically capable of expanding its efforts.¹⁴⁶ Based on this track record, the military would be particularly well suited to contribute to the following projects.

1. International Outreach and Development

The U.S. national security strategy emphasizes the ability to be globally responsive.¹⁴⁷ The U.S. armed forces constitute a gargantuan international presence that both creates change and affects the perception of the nation.¹⁴⁸ While climate change poses national security threats specific to the United States, the

146. This is assuming that federal defense funding, determined annually by Congress in the NDAA, permits such an expansion.

147. See MICHAEL J. LOSTUMBO ET AL., OVERSEAS BASING OF U.S. MILITARY FORCES: AN ASSESSMENT OF RELATIVE COSTS 287 (2013), http://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR201/RAND_RR201.pdf [<http://perma.cc/68TU-SF9T>].

148. See, e.g., PEW RESEARCH CTR., GLOBAL PUBLIC OPINION IN THE BUSH YEARS (2001–2008), at 3–4 (2008), <http://www.pewglobal.org/files/pdf/263.pdf> [<http://perma.cc/W7N4-4SPN>].

underlying issue is of course global in scope. Language calling for international partnerships and cooperation in addressing climate threats appears in most of the Navy and DoD publications described above. Under the Obama administration, the DoD's policy has been for the nation to "lead global efforts with capable allies and partners to assure access to and use of the global commons [by] . . . maintaining relevant and interoperable military capabilities."¹⁴⁹ Certainly, one powerful form of international collaboration on climate change will be through the peaceful sharing of expertise and resources between national militaries. Secretary Hagel appeared to embody this directive in light of climate threats by hosting the US-ASEAN forum—the first of its kind—on American soil in April.¹⁵⁰

However, these relationships need not always be between militaries. In line with this international perspective, the U.S. military's role in development and climate change adaptation in foreign nations should, with the consent of the respective foreign governments, increase. Indeed, the U.S. government believes that its "military is unmatched in its humanitarian assistance and disaster response capabilities."¹⁵¹ These response capabilities may be augmented by the military's forward-looking attitude and applied more rigorously to preemptive assistance, as in the provision of research and resources to allied nations disproportionately threatened by climate change.

Those nations that host property owned by the Department of Defense—primarily military bases—might be receptive to such support.¹⁵² The DoD commits in its Climate Adaptation Roadmap to completing "a baseline survey to assess the vulnerability of [the] military's more than 7,000 bases, installations, and other facilities" across the world.¹⁵³ An outstanding example among nations hosting DoD property is the Republic of the Marshall Islands

149. U.S. DEP'T OF DEF., SUSTAINING U.S. GLOBAL LEADERSHIP: PRIORITIES FOR 21ST CENTURY DEFENSE 3 (2012), http://www.defense.gov/news/Defense_Strategic_Guidance.pdf [<http://perma.cc/FR4J-H2S8>].

150. See Podesta, *supra* note 114.

151. *Id.*

152. DoD owns property in forty foreign countries. See OFFICE OF THE UNDER SEC'Y OF DEF. FOR ACQUISITION, TECH. & LOGISTICS, BASE STRUCTURE REPORT—FISCAL YEAR 2014 BASELINE 6 (2014), http://www.acq.osd.mil/ie/download/bsr/Base%20Structure%20Report%20FY14.pdf?utm_content=buffer09d88&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer [<http://perma.cc/5WZN-SMF7>].

153. Hagel, *supra* note 15.

(“RMI”), which hosts the U.S. Army Kwajalein Atoll (“USAKA”) Reagan Missile Test Site.¹⁵⁴ For several geographic reasons, foremost among them the nation’s proximity to sea level, RMI is among the nations most threatened by climate change.¹⁵⁵ The Army installations in RMI are clearly likewise threatened by the rising sea, and so are undoubtedly subject to the military’s forthcoming adaptation measures. As the military implements its modifications, it should partner with local leadership, patronize the country’s businesses and personnel to procure resources and provide job opportunities when possible, and ultimately assist the nation in implementing similar modifications on civilian property. This is particularly important in those nations where the populace or environment is abnormally endangered by some U.S. military undertaking of the past or present.¹⁵⁶

RMI may be a special case in that the United States is already bound by law to protect it from threats to its national security;¹⁵⁷ a similar relationship may be maintained in developed countries that host DoD property. The Netherlands, for instance, hosts a U.S.

154. This is “a key installation in the U.S. missile defense network.” *The World Factbook: Australia-Oceania: Marshall Islands*, CENT. INTELLIGENCE AGENCY, <https://www.cia.gov/library/publications/the-world-factbook/geos/rm.html> [http://perma.cc/GM9D-6KLE] (last visited Aug. 14, 2015).

155. See *Working Group II: Impacts, Adaptation and Vulnerability*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, <http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=671> [http://perma.cc/CS79-QUZL] (last visited Aug. 14, 2015). RMI has gained attention in recent years for its threatened status. See Marcus Stephen, *On Nauru, a Sinking Feeling*, N.Y. TIMES (July 18, 2011), <http://www.nytimes.com/2011/07/19/opinion/19stephen.html> [http://perma.cc/66EK-Q582].

156. A dome on the Runit island in the Enewetak Atoll of the RMI, for instance, contains a great deal of radioactive waste. “American officials also chose to leave radiation on the land at levels far higher than would be allowed after a similar cleanup in the United States.” The dome “is likely to be submerged by rising seas or torn apart by storms, releasing its radioactive poison into the ocean.” Michael B. Gerrard, *A Pacific Isle, Radioactive and Forgotten*, N.Y. TIMES (Dec. 3, 2014), http://www.nytimes.com/2014/12/04/opinion/a-pacific-isle-radioactive-and-forgotten.html?_r=0 [http://perma.cc/BWF2-AKQY].

157. The United States is bound to protect RMI in the event of a national security threat by virtue of the Compact of Free Association between the two nations. See Compact of Free Association Amendments Act of 2003, Pub. L. No. 108-188, § 311, 117 Stat. 2720, 2820. It is not certain that the national security threats the United States must protect RMI from include climate impacts or threats beyond military attacks. However, a case may be made that the United States is bound to protect RMI from rising sea levels as well. See J. Chris Larson, Note, *Racing the Rising Tide: Legal Options for the Marshall Islands*, 21 MICH. J. INT’L L. 495, 515–21 (2000) (arguing that climate change is a threat to RMI security pursuant to the language of the nation’s Compact of Free Association with the United States, and that the United States is thus legally obligated to defend RMI from climate threats).

military base, and is already coordinating its government and private enterprises to analyze means of staving off the dangers of rising sea levels and other climate threats on its waterfront infrastructure.¹⁵⁸ The U.S. military presence in that country could act as a sort of diplomatic arm of the federal government, acting to enhance resilience rather than stoke martial tensions.

2. Civilian Infrastructure Readjustment

The territory of the United States faces climate threats over the coming decades.¹⁵⁹ Every region of the country will be increasingly affected by climate change, though the specific impacts will vary with geography.¹⁶⁰ In some locations, civilian infrastructure will require modification and adaptation to improve overall resilience to climate change. Among private civilian resources so threatened are the energy network¹⁶¹ and the facilities that make up urban infrastructure.¹⁶²

The Department also owns property in each state in the union.¹⁶³ As shown above, the DoD and its divisions have spent years reworking their energy infrastructure and increasing its resilience;¹⁶⁴ as the nation's largest power consumer,¹⁶⁵ the DoD has clearly accepted a hefty task. It is undoubtedly assessing the climate vulnerability of these domestic properties as well, and will take steps to modify those sites over the coming years. As private entities and states will need to adjust to climate impacts over the coming decades, they could organize relationships with the DoD to share resources, technology, and expertise. These sorts of

158. See DELTA PROGRAMME COMM'R, DELTA PROGRAM 2014: WORKING ON THE DELTA 6–7 (2014), <http://english.deltacommissaris.nl/delta-programme/documents/publications/2013/09/17/delta-programme-2014> [<http://perma.cc/MSQ8-D3SU>].

159. See generally U.S. GLOB. CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES (2009), <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> [<http://perma.cc/F23S-CR4C>].

160. *Id.*

161. *Id.* at 53.

162. *Id.* at 99.

163. See OFFICE OF THE UNDER SEC'Y OF DEF. FOR ACQUISITION, TECH. & LOGISTICS, *supra* note 152, at 6.

164. See, e.g., *Energy Resilience Initiatives*, OFF. DEPUTY UNDER SEC'Y DEF. FOR INSTALLATIONS & ENV'T, <http://www.acq.osd.mil/ie/energy/power.shtml> [<http://perma.cc/B7DB-LRTW>] (last updated Sept. 11, 2015).

165. See ENVTL. & ENERGY STUDY INST., FACT SHEET: DoD'S ENERGY EFFICIENCY AND RENEWABLE ENERGY INITIATIVES 1 (2011), http://www.eesi.org/files/dod_eere_factsheet_072711.pdf [<http://perma.cc/G36Z-2CWT>].

arrangements might be similar to current relationships existing between state governments and federal agencies, such as those used by the Environmental Protection Agency to satisfy national environmental standards across the union.¹⁶⁶ Likewise, such collaboration would feature an increase in partnerships between the military departments and domestic agencies currently addressing climate change issues. Just as domestic agencies impose regulatory standards on private entities, governmental relationships involving military input could serve as launching points from which to assist those entities in adapting to climate change.¹⁶⁷

The Hampton Roads region of Virginia exemplifies the potential benefits to this sort of collaboration.¹⁶⁸ Federal and state agencies have studied the climate threats and adaptation possibilities for this area for years.¹⁶⁹ The region hosts the largest concentration of U.S. military sites on the planet, with Army, Navy, and Air Force facilities all in close proximity.¹⁷⁰ In response to the climate threat looming over its property, the DoD is “beginning work to address a projected sea-level rise of 1.5 feet over the next 20 to 50 years.”¹⁷¹ Hampton Roads is valuable to both the state and the federal government—its critical status demands as much expertise as is available. The DoD recognizes that synergy between state and federal agencies already assessing the region and the military

166. See *National Environmental Performance Partnership System*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/ocirpage/nepps/> [<http://perma.cc/ZC77-JR9P>] (last updated Oct. 17, 2015) (describing the Performance Partnership Agreements that outline “jointly-developed priorities and protection strategies and how EPA and the [relevant] state will work together to address priority needs.”).

167. A fairly obvious example of a federal-state-private regulation for the purpose of addressing climate change is found in the EPA’s Carbon Pollution Emission Guidelines for Existing Stationary Sources, finalized in October 2015. See 40 C.F.R. pt. 60 (2015). These guidelines “provide the states with the ability to achieve the full reductions over a multiyear period, through a variety of reduction strategies, using state-specific or multi-state approaches that can be achieved on either a rate or mass basis. They also address several key policy considerations that states can be expected to contemplate in developing their plans.” Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015).

168. The Hampton Roads area is subject to recurrent flooding. Hagel, *supra* note 15.

169. The U.S. Department of Transportation supported its Virginia counterpart in testing a climate change vulnerability assessment model for the region in 2010. See FED. HIGHWAY ADMIN., FHWA CLIMATE CHANGE VULNERABILITY ASSESSMENT PILOT PROJECT: HAMPTON ROADS, VIRGINIA DEPARTMENT OF TRANSPORTATION—VDOT (2010), http://www.fhwa.dot.gov/environment/climate_change/adaptation/case_studies/hampton_roads/hampton_roads.pdf [<http://perma.cc/D5FX-659A>].

170. Hagel, *supra* note 15.

171. *Id.*

apparatus, with its increasing expertise on climate change adaptation, could benefit the entire Hampton Roads region.¹⁷² This example confirms that the military is capable of working alongside governmental departments at all levels and local communities to address severe climate threats in other places so endangered.

B. Justifications

How do these recommendations follow from what the military apparatus has already done on climate change adaptation, and why do they fit with the federal government's current position on the topic? Primarily, adapting to climate impacts allows the military to reduce national security threats that climate change poses directly and indirectly through its role as a threat multiplier. Such measures also directly align with President Obama's demonstrated ambition that the United States become a leader in international efforts to combat climate change.

1. National Security

The primary justification for additional domestic, military-assisted adaptation efforts is the same as for those currently extant: climate change poses a serious threat to national security. Indeed, in the twenty-first century, "national security" must be construed to cover threats beyond traditional military aggression.¹⁷³ By using its legal authority and expertise to adapt to climate change domestically

172. "DOD realizes that the sea level rise will impact not only the Hampton Roads installation, but also the surrounding community. . . . As a result, mitigation solutions cannot be developed and implemented by DOD alone. DOD will need to work with the Commonwealth of Virginia and the Hampton Road-area local governments to develop a comprehensive strategy." CTR. FOR NAVAL ANALYSES MILITARY ADVISORY BD., NATIONAL SECURITY AND THE ACCELERATING RISKS OF CLIMATE CHANGE 25 (2014), http://www.cna.org/cna_files/pdf/MAB_5-8-14.pdf [<https://perma.cc/HLQ9-QL4H>].

173. Professor Philip Bobbitt, for example, has argued in a mock amicus brief that the Affordable Care Act, the signature healthcare law of the Obama administration, is constitutionally valid on "common defense" grounds because comprehensive medical coverage would fortify the nation against twenty-first century biological attacks. Brief for Professor Philip C. Bobbitt as Amicus Curiae in Support of Petitioners with Respect to the Individual Mandate at 69, *Dep't of Health & Human Servs. v. Florida*, 132 S. Ct. 2566 (2012) (No. 11-396 (2011)), http://www.yale.edu/lawweb/jbalkin/files/Philip_Bobbitt_Healthcare_Brief.pdf [<http://perma.cc/2K52-EGBA>]. While Professor Bobbitt's argument speaks to the authority of Congress, rather than the President, to respond to evolving national security threats, he nonetheless articulates a rationale for modernizing the constitutional national security framework as a whole. *Id.* at 11.

and abroad, the military will counter steadily increasing climate risks in threatened regions and reduce the effort that will be required to combat them later.

i. Civilian Infrastructure Readjustment

Just as climate change undermines the capacity of domestic military installations to support training activities,¹⁷⁴ so too does it threaten the nation's internal, civilian-controlled infrastructure.¹⁷⁵ Indeed, climate change threatens all sixteen critical infrastructure sectors identified by the Department of Homeland Security.¹⁷⁶

As explained in Part II, *supra*, climate change translates into national security threats largely through its role as a threat multiplier.¹⁷⁷ The various components of this threat multiplication that the DoD has prioritized would likely not all apply to the United States. However, potential infrastructural damage is a key element that intensifies other factors such as the disruption of commercial activity and power availability.¹⁷⁸

Through its ongoing research of the vulnerabilities, impacts, and risks posed by climate change,¹⁷⁹ the military is presumably developing expertise in the diagnosis and ultimate response to such challenges. Acute, tested expertise in this field will be integral to revamping civilian infrastructure for greater resilience against domestic national security challenges brought on by climate impacts.

Of course, the DoD focuses primarily on national security threats originating from and occurring abroad,¹⁸⁰ whereas national security threats of a domestic nature come under the purview of the

174. Hagel, *supra* note 15.

175. CTR. FOR NAVAL ANALYSES MILITARY ADVISORY BD., *supra* note 172, at 4.

176. These sectors are: Chemical; Commercial Facilities; Communications; Critical Manufacturing; Dams; Defense Industrial Base; Emergency Services; Energy; Financial Services; Food and Agriculture; Government Facilities; Healthcare and Public Health; Information Technology; Nuclear Reactors, Materials, and Waste; Transportation Systems; Water and Wastewater Systems. *Id.*; see also U.S. DEP'T OF HOMELAND SEC., NIPP 2013: PARTNERING FOR CRITICAL INFRASTRUCTURE SECURITY AND RESILIENCE 9 (2013), http://www.dhs.gov/sites/default/files/publications/NIPP%202013_Partnering%20for%20Critical%20Infrastructure%20Security%20and%20Resilience_508_0.pdf [<http://perma.cc/47XG-DN2K>].

177. See *supra* Part II; Hagel, *Department of Defense Must Plan*, *supra* note 1.

178. CTR. FOR NAVAL ANALYSES MILITARY ADVISORY BD., *supra* note 172, at 26.

179. U.S. DEP'T OF DEF., *supra* note 3, at 8.

180. *About the Department of Defense*, U.S. DEP'T DEF., <http://www.defense.gov/about/> [<http://perma.cc/VP5D-WHB6>] (last updated Aug. 27, 2015).

Department of Homeland Security.¹⁸¹ However, this provides yet another opportunity for the type of interagency coordination called for in the Climate Adaptation Roadmap¹⁸² and Executive Order 13653.¹⁸³

ii. International Outreach and Development

The DoD understands that climate change is a global problem and recognizes the necessity of collaborating with allied nations to combat it.¹⁸⁴ The military has demonstrated its commitment to adaptation, and Secretary Hagel has shown his initiative in cooperating with foreign defense ministers to address climate threats shared by their respective nations.¹⁸⁵ Expanding this role aligns with current DoD policy.¹⁸⁶

The DoD likewise understands the importance of working with other nations to help enhance their ability to adapt to climate

181. *Our Mission*, U.S. DEP'T HOMELAND SEC., <http://www.dhs.gov/our-mission> [<http://perma.cc/38VV-ABF6>] (last updated July 16, 2015).

182. "Collaboration is essential to effectively adapting Department plans and operations, and the Department will enhance collaboration within the Department itself, across the Federal Government, and with external entities that include partner nations, non-government organizations, and the private sector." U.S. DEP'T OF DEF., *supra* note 3, at 13.

183. Section 5 calls for federal agencies to "develop or continue to develop, implement, and update comprehensive plans," which must include, *inter alia*, "a description of how the agency will contribute to coordinated interagency efforts to support climate preparedness and resilience at all levels of government, including collaborative work across agencies' regional offices and hubs, and through coordinated development of information, data, and tools, consistent with section 4 of this order." Exec. Order No. 13,653, 78 Fed. Reg. 66,819, 66,821 (Nov. 1, 2013).

184. *See* Hagel, *supra* note 15.

185. *See, e.g.*, Podesta, *supra* note 114.

186. The DoD plans to focus on "[c]ontinued collaboration with the State Department and foreign militaries to improve vulnerability assessments and adaptation efforts." U.S. DEP'T OF DEF., *supra* note 3, at 13. Furthermore, the DoD committed in 2010 to "increase its investment in the Defense Environmental International Cooperation Program (DEIC) not only to promote cooperation on environmental security issues, but also to augment international adaptation efforts." U.S. DEP'T OF DEF., *supra* note 107, at 86. According to the DoD, the DEIC program is "an effective and cost efficient way to share environmental information; counter the proliferation of weapons of mass destruction; partner to maintain access to resources for training and readiness; contribute to interoperability; promote regional cooperation; foster a global military environmental ethic; and improve interagency processes, focus, and integration." OFFICE OF THE DEPUTY UNDER SEC'Y OF DEF. FOR INSTALLATIONS & ENV'T, FISCAL YEAR 2004 ANNUAL REPORT TO CONGRESS, app. at Q-1 (2004), <http://www.denix.osd.mil/arc/upload/APPQ-DEIC.PDF> [<http://perma.cc/4XK7-5M9M>]. During his speech on October 13, 2014, Secretary Hagel encouraged other nations to participate in the DEIC program. Hagel, *Secretary of Defense Speech*, *supra* note 1.

change.¹⁸⁷ Importantly, assisting base-hosting nations in adapting to climate change decreases the threat multiplication factor explained above, and thereby reduces the likelihood of instability affecting U.S. resources in those countries. Assisting these nations makes practical sense; the resources and intergovernmental relationships necessary for such an endeavor are already in place. Indeed, the DoD already plans to coordinate with foreign host nations in its efforts to adapt military installations abroad.¹⁸⁸ Logistically, it would be relatively simple to translate localized expertise and resources from the adaptation process of a U.S. military installation to the surrounding community. President Obama's broader foreign policy supports this realignment of military might toward peaceful diplomatic efforts.¹⁸⁹

2. Executive Action on Climate Change

Using the military apparatus as a means of delivering adaptation solutions both domestically and abroad aligns with the Obama administration's demonstrated climate change policy. As described *supra*, the executive's control over the military departments is largely undisputed.¹⁹⁰ In light of an oppositional Congress, President Obama has repeatedly shown his willingness to use his executive abilities to act unilaterally on climate change,¹⁹¹ primarily through the administrative state.¹⁹²

187. "We must also work with other nations to share tools for assessing and managing climate change impacts, and help build their capacity to respond." Hagel, *supra* note 15.

188. U.S. DEP'T OF DEF., *supra* note 3, at 13.

189. "I believe in a smarter kind of American leadership. We lead best when we combine military power with strong diplomacy; when we leverage our power with coalition building; when we don't let our fears blind us to the opportunities that this new century presents." President Barack H. Obama, State of the Union Message, 114th Cong., 1st Sess. (Jan. 20, 2015) (transcript available at <http://www.npr.org/2015/01/20/378680818/transcript-president-obamas-state-of-the-union-address> [<http://perma.cc/9CCS-E8TH>]).

190. See *supra* Part III.D.1; see generally *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 643-44 (1952) (Jackson, J., concurring).

191. In his 2013 State of the Union address, President Obama said, "if Congress won't act soon to protect future generations, I will. I will direct my Cabinet to come up with executive actions we can take, now and in the future, to reduce pollution, prepare our communities for the consequences of climate change, and speed the transition to more sustainable sources of energy." President Barack H. Obama, State of the Union Message, 113th Cong., 1st Sess. (Feb. 12, 2013), (transcript available at <http://www.whitehouse.gov/the-press-office/2013/02/12/remarks-president-state-union-address> [<http://perma.cc/QN7Z-P2WL>]).

192. See *supra* note 167 (describing the EPA Stationary Emissions guidelines, which exemplify this well); see also *Climate Program Office*, NOAA, <http://cpo.noaa.gov/>

As aspects of the administrative state are firmly under executive control, the military departments, with their mobility, technology, and increasing expertise, would serve as valuable resources through which to further domestic climate change adaptation efforts. Mobilizing military resources to assist in domestic adaptation efforts as described *supra* would present additional opportunities for interagency collaboration stressed in stated DoD climate change policy.¹⁹³

As chief diplomat, the President holds primacy over the United States' official relationships with foreign nations;¹⁹⁴ the Obama administration has committed to positioning the United States as a leader in international efforts to combat climate change.¹⁹⁵ As in the domestic sphere, President Obama has used his executive abilities to act on climate change in the international sphere, without the support of Congress, to considerable success.¹⁹⁶ Levying military resources to partner with foreign militaries and assist foreign nations in adaptation efforts would continue and enhance this sort of unilateral executive activity. The U.S.

[<http://perma.cc/A7K3-A9VN>] (last visited Aug. 14, 2015) (describing several NOAA-led programs addressing climate change).

193. See *supra* Part IV.B.1.i.

194. See Michael D. Ramsey, *The Textual Basis of the President's Foreign Affairs Power*, 30 HARV. J.L. & PUB. POL'Y 141, 150–51 (2006) (arguing that the eighteenth-century meaning of executive power as codified in the constitutional text provides the President with independent foreign affairs powers); see also Frederic L. Kirgis, Jr., *Federal Statutes, Executive Orders and "Self-Executing Custom,"* 81 AM. J. INT'L. L. 371, 371 (1987) (discussing the relationship between custom and federal executive actions).

195. See *Energy, Climate Change, and Our Environment*, WHITE HOUSE, <http://www.whitehouse.gov/energy/climate-change> [<http://perma.cc/S3QS-Y9UL>] (last visited Sept. 6, 2015); see also President Barack H. Obama, *supra* note 189.

196. In November 2014, President Obama announced an historic agreement between the United States and China in which both nations committed to considerable reductions in greenhouse gas emissions. The agreement was not an official treaty and so did not require senatorial ratification. President Barack H. Obama & President Xi Jinping, Remarks by President Obama and President Xi Jinping in Joint Press Conference (Nov. 12, 2014) (transcript available at <http://www.whitehouse.gov/the-press-office/2014/11/12/remarks-president-obama-and-president-xi-jinping-joint-press-conference> [<http://perma.cc/Y4ZE-YBR8>]); see also Josh Gerstein, *White House Sees Climate Deal Paying Political Dividends*, POLITICO (Nov. 13, 2014, 5:34 AM), <http://www.politico.com/story/2014/11/obama-rebounds-china-112867.html#ixzz3OVGTPaHu> [<http://perma.cc/RAQ8-CDMP>] (“The White House sees this achievement as the kind of flexing of executive authority that’s likely to become the norm for the final two years of the presidency.”); President Barack H. Obama, *supra* note 189 (“[O]ver the past six years, we’ve done more than ever before to combat climate change . . . and that’s why I will not let this Congress endanger the health of our children by turning back the clock on our efforts.”).

military's demonstration of expertise in climate change assessment and adaptation could help legitimize a multinational deal on greenhouse gas reductions, such as through talks held by the United Nations.¹⁹⁷

C. Potential Criticisms and Responses

Despite considerable executive authority to increase military action on climate change, such action will likely result in obstructions from an oppositional Congress. Executive actions are also vulnerable to reversal if a new presidential administration does not support climate change endeavors.

1. Congressional Response

Throughout the tenure of the Obama administration, voices in Congress have strongly dissented from executive action on climate change¹⁹⁸ and unilateral executive action generally.¹⁹⁹ Dissent from critics in Congress is to be expected; but against the backdrop of strong executive control over the armed forces, what substantive actions could Congress take to resist increased military action on climate change?

197. An example is the Paris Agreement produced during the recently concluded twenty-first yearly session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in Paris from November to December, 2015. The Agreement "recognize[s] the importance of support for and international cooperation on adaptation efforts and the importance of taking into account the needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change," and calls for Parties to share "information, good practices, experiences and lessons learned, including, as appropriate, as these relate to science, planning, policies and implementation in relation to adaptation actions." Paris Agreement of the Parties to the United Nations Framework Convention on Climate Change, U.N. Doc FCCC/CP/2015/L.9, at 25 (Dec. 12, 2015). The U.S. military's demonstrated proficiency in these areas could facilitate the agreement's implementation, and increase the likelihood that future international agreements impose binding obligations on Parties.

198. For example, some members of Congress responded negatively to President Obama's 2014 emissions deal with China. See, e.g., Ed O'Keefe et al., *GOP Congressional Leaders Denounce U.S.-China Deal on Climate Change*, WASH. POST (Nov. 12, 2014), http://www.washingtonpost.com/politics/gop-congressional-leaders-denounce-us-china-deal-on-climate-change/2014/11/12/ff2b84e0-6a8d-11e4-a31c-77759fc1eacc_story.html [<http://perma.cc/A9TT-6M7Y>].

199. For example, some members of Congress criticized President Obama when he vowed to use executive actions to revamp immigration policy without Congressional approval in November 2014. Michael D. Shear, *Obama, Daring Congress, Acts to Overhaul Immigration*, N.Y. TIMES (Nov. 20, 2014), <http://www.nytimes.com/2014/11/21/us/obama-immigration-speech.html> [<http://perma.cc/Y8TT-QG32>].

Congress determines military appropriations on an annual basis through the National Defense Authorization Act (“NDAA”) and has used this law as a means to instruct the military in accordance with its will and contrary to the President’s.²⁰⁰ The executive veto power of course provides the President with substantial leverage to resist provisions in a bill he deems inapposite to his agenda.²⁰¹ However, the urgency of punctually passing a necessary bill can render irrelevant even the powerful presidential veto. As the NDAA is integral to assuring a national defense framework, it is one such piece of legislation.²⁰² Indeed, Congress regularly incorporates highly specific commands into the NDAA and thereby exercises significant control over DoD decisions outside of the arena of combat operations.²⁰³ Congress could therefore attempt to prohibit funding for any further research into climate impacts or advancement of adaptation efforts.²⁰⁴

More generally, Congress could undermine the authority of the executive orders described *supra* by passing legislation that contradicts them.²⁰⁵ Presumably, increased opposition to climate

200. A notable example is the NDAA for Fiscal Year 2012, in which Congress affirmed an earlier authorization for indefinite military detention of civilians without the benefit of traditional due process. National Defense Authorization Act for Fiscal Year 2012, Pub. L. No. 112-81, §§ 1021–22, 125 Stat. 1298, 1562–64 (2011). President Obama criticized the relevant provisions. See Press Release, Office of the Press Sec’y, Statement by the President on H.R. 1540 (Dec. 31, 2011), <http://www.whitehouse.gov/the-press-office/2011/12/31/statement-president-hr-1540> [<http://perma.cc/88TP-3K2N>].

201. See Kagan, *supra* note 119, at 2315.

202. This scenario came to pass upon the passage of the NDAA 2012. In regards to the controversial provisions described *supra* note 200, President Obama said, “I have signed this bill despite having serious reservations with certain provisions Ultimately, I decided to sign this bill not only because of the critically important services it provides for our forces and their families and the national security programs it authorizes, but also because the Congress revised provisions that otherwise would have jeopardized the safety, security, and liberty of the American people.” Press Release, Office of the Press Sec’y, *supra* note 200.

203. NDAA 2014, for example, allocates the DoD budget for purchase of specific vehicle models, revises the Uniform Code of Military Justice provisions regarding sexual assault, and authorizes the Secretary of Defense to assist Jordan’s maintenance of its border with Syria. NDAA 2015, meanwhile, significantly limits DoD funding for and access to the alternative energy source known as biofuels. This limitation is particularly foreboding because it infringes upon a military decision to act in a more environmentally sustainable manner. See Sarah Liebschutz, Alan A. Pemberton & Steven A. Shaw, *Changes to Biofuels Provisions in House-Passed NDAA FY 15*, NAT’L L. REV. (Jan. 4, 2015), www.natlawreview.com/article/changes-to-biofuels-provisions-house-passed-ndaa-fy-15 [<http://perma.cc/CC5P-TBJ4>].

204. See, e.g., Sheppard, *supra* note 124.

205. See *supra* Part III.A.2 (observing that the President could respond to such an attempt with his veto).

change response or the President himself in Congress would increase the likelihood of legislative resistance to an expanded military role in climate change adaptation.²⁰⁶

A strong national security rationale for military action would likely lessen congressional resistance. President Obama has therefore undertaken to emphasize this rationale.²⁰⁷ Indeed, solidly associating climate change with threats to national security may construe congressional action favorably to presidential-military action. Additionally, though Congress retains great leeway in rejecting executive policies, a strong national security footing could blunt the possibility of direct legislative prohibitions.

2. New Presidential Administration

The executive's powerful control over the armed forces exists regardless of who occupies the office of President. Without legislation codifying President Obama's executive climate change actions, through the military apparatus and otherwise, his successor would possess the legal authority to unilaterally reverse course and undo those initiatives. Under the threat of an oppositional successor and the absence of legislation codifying President Obama's executive actions, he would need to rely on the momentum these executive actions have created; essentially, it would need to be politically difficult for the successor to unilaterally undo the standards and initiatives imposed during the Obama administration.²⁰⁸

206. This possibility is current, as the 2014 Congressional midterm elections saw the Republican Party assume control of both the House and the Senate. Jonathan Weisman & Ashley Parker, *Riding Wave of Discontent, G.O.P. Takes Senate*, N.Y. TIMES (Nov. 4, 2014), <http://www.nytimes.com/2014/11/05/us/politics/midterm-elections.html> [<http://perma.cc/G55P-E6WN>].

207. See Lauren Gambino, *Barack Obama: Climate Deniers Pose Serious Threat to U.S. Security*, GUARDIAN (May 20, 2015, 1:28 PM), <http://www.theguardian.com/environment/2015/may/20/barack-obama-climate-change-poses-risk-to-us-military-bases> [<http://perma.cc/8BQ2-NDHT>].

208. See, e.g., Ian Ayres & John Fabian Witt, *Obama, the Least Lame President?*, N.Y. TIMES (Dec. 21, 2014), <http://www.nytimes.com/2014/12/22/opinion/obama-the-least-lame-president.html> [<http://perma.cc/HE33-ZWHV>] (pointing out that unilateral executive actions are often difficult for successors to repeal because they effectively create new rights).

V. CONCLUSION

Under the Obama administration, the military response to climate change has dramatically expanded. The American military recognizes that climate change, as a threat multiplier, poses a serious danger to national security that will not abate soon. In response, it has spent years researching climate impacts globally and planning responses to them, and thus has been developing expertise and specialized technology to deal with climate threats. The Navy's work in assessing the changing Arctic environment exemplifies the military's capabilities in this regard particularly well.

Military actions come under strong executive control, and in comparison to other federal agencies, are relatively well insulated from interference by Congress and the judiciary. Because the military apparatus functions directly under executive control and has developed a noteworthy capacity for climate change assessment and adaptation, this Note recommends an expanded military role in climate change adaptation internationally and domestically. Such an expansion would help to address the national security threat of climate change, and would align with President Obama's demonstrated willingness to act on climate issues through executive authority rather than with congressional authorization. Executive action of this nature could face congressional opposition through contrary legislation, and would be exposed to repeal by a successive presidential administration in the absence of codifying legislation. Regardless, an expanded military role could prove crucial to climate policy and implementation in the coming decades.