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## Climate Change and the Law of National Security Adaptation

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## CLIMATE CHANGE AND THE LAW OF NATIONAL SECURITY ADAPTATION

*Mark Nevitt*<sup>†</sup>

**ABSTRACT**—The Department of Defense (DoD) is the largest employer in the world, owns and operates an enormous global real estate portfolio, and emits more Greenhouse Gases (GHGs) than many nations. Entrusted with the national security, the DoD is now threatened by a new enemy—climate change. Climate change imperils national security infrastructure while undermining the military’s capacity to respond to climate-driven disasters at home and abroad. However, legal scholarship has yet to address what I call “the law of national security adaptation” and related questions. For example, how do environmental and climate change laws apply to the U.S. military? What laws can be employed to safeguard military installations from rising seas, extreme weather, and other climate risks?

This Essay addresses these questions, inspired by my experience as an environmental attorney in Norfolk, Virginia—home to the largest navy base in the world. I first describe how climate change has become a new “environmental enemy” that threatens national security property around the globe. Second, I describe and analyze how the law of national security adaptation has developed to apply to environmental law and property law to encompass climate adaptation efforts on military installations. In doing so, the law of national security adaptation brings together constitutional law, an amalgamation of executive branch directives and regulations, and climate legislation designed to safeguard military infrastructure. Last, I argue that insights for climate adaptation more generally can be gleaned from the military’s experience addressing climate change. Somewhat surprisingly, congressional action on national security adaptation has been a beacon of bipartisanship. It has kept the climate adaptation “flame” alive when climate action was being extinguished elsewhere. The law of national security adaptation thus offers broader, normative insights for adaptation efforts outside the military fence line.

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*“[Norfolk is] the biggest Navy base in the world, and it’s going to have to be relocated . . . It’s just a question of when.”*

—Al Gore<sup>††</sup>

INTRODUCTION

In August of 2022, Ukrainians needed weaponry. Fast. Transporting critical humanitarian supplies and large-scale munitions to the frontlines of

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<sup>††</sup> Jeff Goodell, *The Pentagon and Climate Change: How Deniers Put National Security at Risk*, ROLLING STONE (Feb. 12, 2015) (quoting Vice President Al Gore), <https://www.rollingstone.com/politics/politics-news/the-pentagon-climate-change-how-deniers-put-national-security-at-risk-176393/> [<https://perma.cc/82JU-SYU5>].

the Russia–Ukraine conflict required a 10,000-mile journey by sea.<sup>1</sup> This journey started at American naval bases located on the eastern seaboard—such as Norfolk Naval Station in Virginia, the largest naval base in the world.<sup>2</sup> Norfolk is home to the Atlantic Fleet and critical national security infrastructure worth billions of taxpayer-funded dollars.<sup>3</sup> It has the capacity to project awesome naval power around the globe on a moment’s notice while serving as a leading candidate to supply critical munitions to Ukraine.<sup>4</sup> However, in Norfolk, the seas are rising and the soil is sinking, exposing the base to debilitating climate impacts. In August, when Ukraine needed weaponry, hurricane season was in full swing, and Hurricane Ian had just pounded the Southeast.

The difficulty of transporting weaponry in hurricane season, when the base was *already* suffering from rising sea levels and erosion, made it increasingly clear that these military installations faced a new enemy: climate-driven extreme weather.<sup>5</sup> Climate change acts as a threat multiplier, exacerbating extreme weather, drought, recurrent flooding, and storm surges.<sup>6</sup> This uptick in climate-driven extreme weather events threatens national security infrastructure and undermines military readiness. The

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<sup>1</sup> While the precise maritime logistical routes from the United States to Ukraine remain classified, the increase in supply of heavy weaponry has shifted the supply routes to maritime traffic. This inevitably includes military bases such as Norfolk Naval Station or Naval Weapons Station Earle in New Jersey. See Dan Lamothe, *Pentagon Expands Use of Seas to Send Weapons to Ukraine*, WASH. POST (Aug. 27, 2022, 11:10 AM), <https://www.washingtonpost.com/national-security/2022/08/27/ukraine-weapons-shipping-sea/> [https://perma.cc/2E2F-WHN8] (“The Defense Department began sending some items by sea a few weeks after the invasion but significantly broadened the effort this spring, as the United States began providing Ukraine with howitzer artillery and other heavy weapons that require a steady flow of large-caliber ammunition . . .”). While the precise logistical supply chain remains classified, the eastern seaboard contains numerous weapons stations such as Naval Weapons Station Yorktown, VA and Naval Weapons Station Earle, NJ.

<sup>2</sup> FORBES TOMPKINS & CHRISTINA DECONCINI, WORLD RESOURCES INSTITUTE FACT SHEET: SEA-LEVEL RISE AND ITS IMPACT ON VIRGINIA 2 (2014) (estimating that \$460 million is needed to upgrade infrastructure at Naval Station Norfolk in the face of rising sea levels).

<sup>3</sup> Norfolk Naval Station’s ability to withstand climate impacts has sparked interest in safeguarding military installations. Former Vice President Al Gore exclaimed, “It’s the biggest Navy base in the world, and it’s going to have to be relocated . . . It’s just a question of when.” Goodell, *supra* note ††.

<sup>4</sup> See Lamothe, *supra* note 1.

<sup>5</sup> READINESS AND ENV’T PROT. INTEGRATION PROGRAM, DEP’T OF DEF., BUILDING RESILIENCE TO CLIMATE CHANGE THROUGH OFF-BASE NATURAL INFRASTRUCTURE SOLUTIONS 15 (2021) [hereinafter REPI RESILIENCE].

<sup>6</sup> National Defense Authorization Act for Fiscal Year 2018, Pub L. No. 115-91, § 335, 131 Stat. 1283, 1357 (2017). This provision was introduced by Rep. James Langevin (D-RI). Jordan Brunner, *Congress Adapts to Calamity: The FY 2018 NDAA’s Climate Change Provisions*, LAWFARE (Dec. 11, 2017, 7:00 AM), <https://www.lawfareblog.com/congress-adapts-calamity-fy-2018-ndaas-climate-change-provisions> [https://perma.cc/6G5D-HEFL].

result: climate change harms America’s ability to protect its national security interests and support its allies.<sup>7</sup>

What’s more, safeguarding Norfolk and similarly situated installations from the impact of climate change has enormous implications for national security and military readiness, and raises novel questions of national security and climate change law. After all, these climate impacts don’t respect neat delineations between private, public, and national security property.<sup>8</sup> Existing climate adaptation law centers on state and local zoning and planning authorities, yet military installations are federal property, where local regulations do not necessarily apply.

What laws apply to safeguarding federal national security infrastructure? Do these laws and regulations adequately take climate change into account?<sup>9</sup> Should future decisions on whether to rebuild or retreat from installations like Norfolk take climate change into account? How, exactly, do environmental, land use, and zoning laws apply to federal facilities and military installations? Answering these questions requires an understanding of environmental, property, constitutional, and national security law.

I call this convergence the *law of national security adaptation*.<sup>10</sup>

This Essay introduces the law of national security adaptation, drawing upon my experience as the Department of Defense’s (DoD) Regional Environmental Counsel; I advised an intergovernmental climate change pilot project in Hampton Roads, Virginia from 2012 to 2015.<sup>11</sup> In this capacity, I partnered with federal, state, and local officials to decipher the law of national security adaptation. This experience also provided a key insight.

<sup>7</sup> To highlight the relationship between climate change and national security, President Biden’s National Security Strategy was just issued on October 12, 2022. “Climate” is referenced 63 times throughout the document (by comparison, Russia is referenced 71 times). See WHITE HOUSE, NATIONAL SECURITY STRATEGY 9 (2022).

<sup>8</sup> This presents both a challenge and an opportunity. See discussion *infra* Section II.D.

<sup>9</sup> See U.S. GOV’T ACCOUNTABILITY OFF., GAO-14-446, CLIMATE CHANGE ADAPTATION: DOD CAN IMPROVE INFRASTRUCTURE PLANNING AND PROCESSES TO BETTER ACCOUNT FOR POTENTIAL IMPACTS 3 (2014) [hereinafter GAO ADAPTATION]; see also Sharon E. Burke, *Should Climate Change Force Some Military Bases to Close?*, SLATE (June 23, 2022, 5:50 AM), <https://slate.com/technology/2022/06/military-bases-climate-change-brac.html> [<https://perma.cc/7TM4-DMHL>] (discussing how climate change will inform the congressionally-mandated process to close military installations).

<sup>10</sup> Adaptation is defined by the DoD as “[a]djustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative efforts.” *DOD Directive 4715.21: Climate Change Adaptation and Resilience*, DEP’T OF DEF. (Aug. 21, 2018), <https://www.esd.whs.mil/portals/54/documents/dd/issuances/dodd/471521p.pdf> [<https://perma.cc/BM38-TTBB>] [hereinafter DOD Directive 4715.21].

<sup>11</sup> For an overview of this project, see Old Dominion University, *Hampton Roads Intergovernmental Pilot Project Archive 2014-2016*, ODU DIGITAL COMMONS, [https://digitalcommons.odu.edu/odurc\\_pilot/](https://digitalcommons.odu.edu/odurc_pilot/) [<https://perma.cc/85D5-7VJW>].

State and local governmental officials and politicians from different political parties were keenly interested in finding solutions to safeguard Norfolk Naval Station—a key economic asset for the region—from climate impacts. Thus, increased bipartisan support for climate adaptation may help to depoliticize the concept of climate risk.

This Essay proceeds in three parts. In Part I, I analyze how climate change acts as a new “environmental enemy,” threatening national security property around the globe. Part II introduces and analyzes the law of national security adaptation, showing how it has emerged from constitutional law, an amalgamation of executive branch directives and regulations, and climate legislation designed to safeguard military infrastructure. In Part III, I argue that unique national security adaptation authorities—such as the Readiness and Environmental Integration (REPI) Program—offer broader, normative insights for adaptation efforts outside the national security adaptation context. Specifically, the bipartisan nature of recent legislative victories can depoliticize climate adaptation laws and help validate climate risk. Furthermore, these efforts can assist climate adaptation efforts outside military installations, serving as a laboratory for national climate adaptation.

#### I. CLIMATE CHANGE: A NEW ENVIRONMENTAL “ENEMY”

*“No nation can find lasting security without addressing the climate crisis.”*

—Secretary of Defense Lloyd Austin<sup>12</sup>

Climate change threatens national security property, which can be broadly defined to comprise property owned by the three key national security agencies: the DoD, the Department of Homeland Security, and the Department of State. This Essay focuses on military installations owned by the DoD. The DoD’s real estate holdings are massive: by one estimate, it contains over 550,000 structures across twenty-eight million acres in all 50 states.<sup>13</sup> The replacement value of this critical infrastructure in the United States alone is close to \$1 trillion dollars.<sup>14</sup> Overseas, the DoD operates 600

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<sup>12</sup> OFF. OF THE UNDER SEC’Y FOR POL’Y, DEP’T OF DEF., DEPARTMENT OF DEFENSE CLIMATE RISK ANALYSIS 16 (2021) (quoting Secretary of Defense Lloyd Austin); *see also* Mark P. Nevitt, *Defending the Environment: A Mission for the World’s Militaries*, 36 U. HAW. L. REV. 27, 91–93 (2014) (summarizing how the DoD has recognized the national security threats posed by climate change).

<sup>13</sup> GAO ADAPTATION, *supra* note 9, at 3.

<sup>14</sup> In 2014, GAO estimated the replacement value as “close to \$850 billion,” an estimate that has surely risen. *See id.* at 5. In 2017, GAO conducted a similar study for overseas installations. *See* U.S. GOV’T ACCOUNTABILITY OFF., GAO-18-206, CLIMATE CHANGE ADAPTATION: DOD NEEDS TO BETTER INCORPORATE ADAPTATION INTO PLANNING AND COLLABORATION AT OVERSEAS INSTALLATIONS (2017) [hereinafter GAO OVERSEAS]. For a discussion of how climate change should be taken into account for difficult military base closure decisions, *see* Burke, *supra* note 9.

sites with a replacement value of \$158 billion.<sup>15</sup> The DoD is also the world’s largest employer.<sup>16</sup> Thus, failure to safeguard national security property from the threat of climate change has broader implications for job security and the economic health of communities nationwide.

Indeed, climate change is increasingly understood as an “enemy” that threatens military installations, putting taxpayer investments and military readiness at risk. Many installations are vulnerable to a wide swath of climate impacts—recurrent flooding, drought, desertification, wildfires, and thawing permafrost.<sup>17</sup> The DoD surveyed seventy-nine of its mission-essential installations in 2019, finding that sixty-seven percent were under current risk of recurrent flooding.<sup>18</sup> This number increases to seventy-six percent in twenty years.<sup>19</sup>

The independent Government Accountability Office (GAO) concurs with the DoD’s sobering assessment of its own vulnerability.<sup>20</sup> The GAO estimates that climate change exposes the U.S. government to billions of dollars in estimated liabilities.<sup>21</sup> These risks include flooding, rising sea levels, catastrophic storms, and damage to wastewater infrastructure.<sup>22</sup> To reduce national security risk, the GAO made several recommendations, including considering climate change’s effects on defense infrastructure projects.

As climate change increases extreme weather in scope and scale, national security infrastructure will be at greater risk.<sup>23</sup> These extreme

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<sup>15</sup> GAO OVERSEAS, *supra* note 14.

<sup>16</sup> See Ruth Alexander, *Which is the World’s Biggest Employer?*, BBC NEWS (Mar. 20, 2012), <http://www.bbc.co.uk/news/magazine-17429786> [https://perma.cc/6U3W-D26Q].

<sup>17</sup> DEP’T OF DEF., 2014 CLIMATE CHANGE ADAPTATION ROADMAP 7 (2014) [hereinafter CLIMATE ROADMAP]. This Essay does not take a normative view on *whether* the U.S. military should be this large in the face of national security threats. It does note, however, that certain military installations are uniquely vulnerable to climate risks.

<sup>18</sup> OFF. OF THE UNDER SEC’Y OF DEF. FOR ACQUISITION & SUSTAINMENT, DEP’T OF DEF., REPORT ON EFFECTS OF A CHANGING CLIMATE TO THE DEPARTMENT OF DEFENSE 5 (2019) [hereinafter CLIMATE EFFECTS]. It also found that 43 of 79 installations were threatened by drought and 36 of 79 installations were threatened by wildfires.

<sup>19</sup> *Id.* at 2.

<sup>20</sup> U.S. GOV’T ACCOUNTABILITY OFF., GAO-22-105830, CLIMATE CHANGE RISKS TO NATIONAL SECURITY (2022).

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> See, e.g., Dakin Andone, *Death Toll from Hurricane Michael Rises to 36*, CNN (Oct. 20, 2018, 4:51 PM), <https://www.cnn.com/2018/10/20/us/hurricane-michael-death-toll/index.html> [https://perma.cc/RPS6-LHTF]; Gabriella Borter, *Hurricane Florence Death Toll Rises to 51*, REUTERS (Oct. 2, 2018, 1:39 PM), <https://www.reuters.com/article/us-storm-florence-hurricane-florence-death-toll-rises-to-51-idUSKCN1MC2JJ> [https://perma.cc/F7Q4-J4VW].

weather events are only growing in intensity, severity, and frequency.<sup>24</sup> Consider the impacts to national security infrastructure inflicted by Hurricanes Michael and Florence in 2018.<sup>25</sup> These catastrophic storms inflicted billions of dollars of damage to military bases in Florida and North Carolina, respectively, leaving taxpayers with a \$5 billion bill.<sup>26</sup> Moreover, some military bases are located in some of the most vulnerable locations in the world, conducting missions critical to national security. For example, Kwajalein Atoll in the Marshall Islands hosts a key Air Force radar installation tasked with tracking North Korean missiles. It may be underwater by mid-century due to climate-induced sea level rise.<sup>27</sup> The current Secretary of Defense, Lloyd Austin, exclaimed that the climate impacts are already harming military bases and the DoD's ability to carry out its mission:"[i]n just the past few years, wildfires have forced evacuations at bases in the western United States, while hurricanes on the East Coast and flooding in the Midwest have inflicted billions of dollars of damage on facilities that are home to key warfighting capabilities."<sup>28</sup>

In 2014, the DoD issued its first Climate Adaptation Roadmap, acknowledging that climate change-driven flooding, extreme weather, and sea level rise threaten a large swath of national security infrastructure.<sup>29</sup> The Climate Adaptation Roadmap jumpstarted congressional interest in national

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<sup>24</sup> See Stephanie C. Herring et al., *Introduction to Explaining Extreme Events of 2017 from a Climate Perspective*, in EXPLAINING EXTREME EVENTS OF 2017 FROM A CLIMATE PERSPECTIVE S1 (Stephanie C. Herring et al. eds., 2019) (finding that 15 of 16 extreme weather events were made more likely by human caused climate change).

<sup>25</sup> Mark Nevitt, *Pentagon's Climate Change Report Lacks Analysis the Law Requires*, JUST SEC. (Jan. 23, 2019), <https://www.justsecurity.org/62335/pentagons-climate-change-report-lacks-analysis-law-requires/> [<https://perma.cc/H7E9-XWTG>]. Relatedly, we have witnessed a rise in climate attribution science. See generally Michael Burger et al., *The Law and Science of Climate Change Attribution*, 45 COLUM. J. ENV'T L. 57, 112–28 (2020) (describing the role of climate impact attribution); see also Herring et al., *supra* note 24, at S2.

<sup>26</sup> Valerie Insinna & Joe Gould, *The Air Force Is Spinning Toward a \$4 billion Financial Disaster*, DEF. NEWS (Apr. 30, 2019), <https://www.defensenews.com/air/2019/04/30/the-air-force-is-spinning-toward-a-4-billion-financial-disaster/> [<https://perma.cc/2SNH-EDMJ>].

<sup>27</sup> Gregg Badichek, *The Threat Divider: Expanding the Role of the Military in Climate Change Adaptation*, 41 COLUM. J. ENV'T L. 139, 170 (2016); Curt D. Storlazzi et al., *Most Atolls Will Be Uninhabitable by the Mid-21st Century Because of Sea-Level Rise Exacerbating Wave-Driven Flooding*, SCI. ADVANCES (Apr. 25, 2018), <http://advances.sciencemag.org/content/4/4/eaap9741> [<https://perma.cc/GD8L-D6L6>].

<sup>28</sup> OFF. OF THE UNDER SEC'Y OF DEF., DEP'T OF DEF., HIGHLIGHTS AND EXAMPLES FOR THE DEPARTMENT OF DEFENSE CLIMATE ADAPTATION PLAN 1 (2021) (quoting Secretary of Defense Lloyd Austin). This plan was submitted in response to President Biden's January 21, 2021 Executive Order, Number 14,008, *Tackling the Climate Crisis at Home and Abroad*. Exec. Order No. 14,008, 86 Fed. Reg. 7619 (Jan. 27, 2021).

<sup>29</sup> CLIMATE ROADMAP, *supra* note 17.



security adaptation and unleashed a series of analytical papers from the national security intelligence community.

In response, lawmakers began to fear that installations in their congressional districts would be affected by climate impacts,<sup>30</sup> which sparked an increase in climate adaptation investment at military installations in the United States.<sup>31</sup> Shortly thereafter, extreme weather events damaged billions of dollars of military infrastructure in Florida and North Carolina.<sup>32</sup> In 2019, the Office of the Director of National Intelligence stated:

Global environmental and ecological degradation, as well as climate change, are likely to fuel competition for resources, economic distress, and social discontent through 2019 and beyond. Climate hazards such as extreme weather, higher temperatures, droughts, floods, wildfires, storms, sea level rise, soil degradation, and acidifying oceans are intensifying, threatening infrastructure, health, and water and food security.<sup>33</sup>

President Biden emphasized the connection between climate change and national security in January 2021 by issuing Executive Order 14,008, “Tackling the Climate Crisis at Home and Abroad.”<sup>34</sup> The Executive Order mandated that climate considerations “be an essential element of United States foreign policy and national security.”<sup>35</sup> In response to this Executive Order, the DoD issued its Climate Adaptation Plan and Climate Risk Analysis later that year. President Biden’s National Security Strategy was issued on October 12, 2022.<sup>36</sup> It elevated climate change’s security implications to its own subchapter and mentioned “climate” sixty-one times (by comparison, Russia was mentioned seventy-one times and China just ten). It states:

The climate crisis is the existential challenge of our time. A warming planet endangers Americans and people around the world—risking flood and water

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<sup>30</sup> Professor Lazarus has argued that the Defense Base Closure and Realignment Act (DBCRA) could be adopted more broadly for difficult congressional decisions on climate change. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1202–03 (2009). The DBCRA limits congressional political accountability for unpopular, short-term decisions. *Id.*

<sup>31</sup> CLIMATE ROADMAP, *supra* note 17.

<sup>32</sup> Phil McKenna, *Hurricane Michael Cost this Military Base About \$5 Billion, Just One of 2018’s Weather Disasters*, INSIDE CLIMATE NEWS (Feb. 6, 2019), <https://insideclimatenews.org/news/18122018/tyndall-military-hurricane-cost-2018-year-review-billion-dollar-disasters-wildfire-extreme-weather-drought-michael-florence> [<https://perma.cc/P24W-RBJF>].

<sup>33</sup> DANIEL R. COATS, DIR. OF NAT’L INTEL., STATEMENT FOR THE RECORD: WORLDWIDE THREAT ASSESSMENT OF THE U.S. INTELLIGENCE COMMITTEE 23 (2019).

<sup>34</sup> Exec. Order No. 14,008, 86 Fed. Reg. 7619 (Jan. 27, 2021).

<sup>35</sup> *Id.*

<sup>36</sup> WHITE HOUSE, *supra* note 7, at 1.

supplies, public health, and infrastructure and our national security. Without immediate global action to reduce emissions, scientists tell us we will soon exceed 1.5 degrees of warming, locking in further extreme heat and weather, rising sea levels, and catastrophic biodiversity loss.<sup>37</sup>

In sum, climate-driven damage to national security infrastructure poses three major risks. First, damage to infrastructure has broad economic consequences. It burdens U.S. taxpayers and harms the health of the local economy, which is often inextricably linked to the installation. Second, it has national security-readiness consequences: it hinders military operational readiness and undermines the ability to project power and support key allies around the globe. Third, in a cruel irony, climate change undermines the military's own capacity to respond to climate-induced natural disasters.<sup>38</sup> This is important because the military plays a large role in responding to climate disasters. Indeed, the military's largest *domestic* deployments in recent years took place as the military responded to extreme weather events in Louisiana (Hurricane Katrina), New York (Hurricane Sandy), and Texas (Hurricane Harvey). One need only look at the outsized role that the Florida National Guard and U.S. Coast Guard play in the aftermath of Hurricane Ian and other recent disasters to see the importance of the military in responding to climate crises.<sup>39</sup> These extreme weather events will only worsen.<sup>40</sup> As the National Guard, Coast Guard, and other military assets are called upon to respond to extreme weather events, these military resources and installations are similarly vulnerable to climate disaster.

## II. THE LAW OF NATIONAL SECURITY CLIMATE ADAPTATION

*“Climate change is one of the most destabilizing forces of our time, exacerbating national security concerns and posing serious readiness challenges.”*

—Secretary of the Navy Carlos del Toro<sup>41</sup>

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<sup>37</sup> *Id.* at 27.

<sup>38</sup> See National Defense Authorization Act for Fiscal Year 2018, Pub L. No. 115-91, § 335, 131 Stat. 1283, 1357 (2017).

<sup>39</sup> *Rescue and Recovery in Hurricane Ian's Wake*, DEP'T OF DEF. (Sept. 30, 2022), <https://www.defense.gov/News/News-Stories/Article/Article/3175857/rescue-and-recovery-in-hurricane-ians-wake/> [<https://perma.cc/JKB3-73EJ>] (stating that more than 5,000 members of the National Guard were supporting the Hurricane Ian response).

<sup>40</sup> This was reinforced in the 2022 National Security Strategy, which stated, “[c]limate effects and humanitarian emergencies will only worsen in the years ahead—from more powerful wildfires and hurricanes in the United States to flooding in Europe, rising sea levels in Oceania, water scarcity in the Middle East, melting ice in the Arctic, and drought and deadly temperatures in sub-Saharan Africa.” WHITE HOUSE, *supra* note 7, at 9.

<sup>41</sup> OFF. OF THE ASSISTANT SEC'Y OF THE NAVY FOR ENERGY, INSTALLATIONS, AND ENV'T, DEP'T OF THE NAVY, CLIMATE ACTION 2030: DEPARTMENT OF THE NAVY 1 (2022).

In order to meet the demands of climate change, national security law has begun to incorporate climate adaptation measures. This emerging body of law, which I call “the law of national security climate adaptation,” encompasses four areas: (1) constitutional law; (2) land use controls and executive branch regulations governing federal facilities; (3) environmental law; and (4) specific legislative measures focused on protecting national security infrastructure.<sup>42</sup> I turn to each area below.

#### *A. Constitutional Authority: Property & Enclave Clauses*

The Constitution empowers Congress to regulate *all* federal property—including national security installations—via two clauses. First, the Property Clause states that “[c]ongress [has the] Power to dispose of and make all needful Rules and Regulations respecting the . . . Property belonging to the United States.”<sup>43</sup> The Supreme Court has interpreted Congress’s authority under the Property Clause broadly to authorize a wide swath of activities.<sup>44</sup> Second, the Enclave Clause authorizes Congress to “exercise exclusive Legislation . . . over all Places purchased by the Consent of the Legislature of the State in which the Same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings.”<sup>45</sup> These two clauses provide Congress with the constitutional authority to manage and control the zoning, design, and construction standards for building on federal lands, which makes them critical authorities for climate adaptation efforts.<sup>46</sup> Outside of federal property, state and local governments possess these police powers.

Taken together, the Property and Enclave Clauses authorize the federal government to establish zoning and adaptation standards for all U.S. property in its inventory.<sup>47</sup> While federal authorities must consider state and local

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<sup>42</sup> The law of national security climate adaptation received a boost in 2003 when Congress passed the Readiness and Environmental Protection Integration Program (REPI). REPI “preserves military missions by supporting cost-sharing agreements between the Military Services, other federal agencies, state and local governments, and private conservation organizations to avoid land use conflicts near military installations, address environmental restrictions that limit military activities, and increase resilience to climate change.” *See Readiness and Environmental Protection Integration Program*, DEP’T OF DEF., <https://www.repi.mil/> [<https://perma.cc/8SWA-TV5Z>]. REPI is found at 10 U.S.C. § 2684a.

<sup>43</sup> U.S. CONST. art. IV, § 3, cl. 2.

<sup>44</sup> *Kleppe v. New Mexico*, 426 U.S. 529, 539 (1976).

<sup>45</sup> U.S. CONST. art. I, § 8, cl. 17.

<sup>46</sup> *See, e.g., James v. Dravo Contracting Co.*, 302 U.S. 134, 143 (1937) (construing the Enclave Clause broadly to encompass all structures necessary for facilitating the business of the federal government). The Enclave Clause implicates concurrent and exclusive jurisdiction, a critical determination in the criminal law context, but is beyond the scope of this Essay.

<sup>47</sup> *See Village of Euclid v. Amber Realty Co.*, 272 U.S. 365, 387–88 (1926). This zoning authority is based on the Tenth Amendment. U.S. CONST. amend. X.

zoning laws when designing and implementing adaptation measures on federal lands, state and local zoning laws—and their procedural requirements—do not ultimately bind federal adaptation action.<sup>48</sup> Nevertheless, Congress has waived sovereign immunity under several key federal environmental laws. Sovereign immunity prohibits a government from being sued in federal court without express congressional consent.<sup>49</sup> These sovereign immunity waivers have increasing relevance for national security adaptation measures, as discussed below.

*B. Land Use Controls and Executive-Branch Regulations Governing Federal Facilities*

What is the applicable zoning law for national security property? Zoning, design, and building standards are implemented via the standards set forth in the Unified Facilities Criteria (UFC), internal agency regulations, and installation master plans.<sup>50</sup> As a general matter, buildings on federal installations comply with nationally recognized model building codes.<sup>51</sup>

First, the UFC is a critical adaptation planning document, somewhat analogous to state and local zoning and building regulations.<sup>52</sup> The UFC provides minimum requirements and guidance for designing, constructing, and renovating buildings on all federal installations.<sup>53</sup> Military planners,

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<sup>48</sup> 40 U.S.C. § 3312(c)(1)–(2). This statute speaks to “cooperation with state and local officials.” *See id.* § 3312(d). It further notes that noncompliance with state and local government building codes does not result in a judicially cognizable action. *See id.* § 3312(f). This includes state and local zoning laws relating to landscaping, historic preservation, and similar laws. The statute states in full that “[e]ach building constructed or altered by the Administration or any other federal agency shall be constructed or altered only after consideration of all requirements (except procedural requirements) of the following laws of a State or a political subdivision of a State, which would apply to the building if it were not a building constructed or altered by a federal agency.” *Id.* § 3312(c). And federal legislation overrides conflicting state laws. *Compare* Cal. Coastal Comm’n v. Granite Rock Co., 480 U.S. 572, 573 (1987) (allowing for state jurisdiction over federal lands, consistent with the authority in the Coastal Zone Management Act), *with* Kleppe v. New Mexico, 426 U.S. 529, 530 (1976) (upholding a federal law protecting wild-roaming horses on federal lands). And federal legislation, of course, overrides conflicting state laws.

<sup>49</sup> *Sovereign Immunity*, BLACK’S LAW DICTIONARY (11th ed. 2019).

<sup>50</sup> *DOD Directive 4270.5: Military Construction*, DEP’T OF DEF. (Aug. 31, 2018) [hereinafter *Military Construction*], <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/427005p.pdf> [<https://perma.cc/QW6H-T4J2>] (“The UFC . . . shall be used to the greatest extent possible by all the DoD Components for planning, design, and construction . . . of facilities, regardless of funding source . . .”).

<sup>51</sup> 40 U.S.C. § 3312. A building constructed by a federal agency “shall be constructed or altered . . . in compliance with one of the nationally recognized model building codes and with other nationally recognized codes . . .” *Id.* § 3312(b).

<sup>52</sup> *Military Construction*, *supra* note 50 (“The UFC . . . shall be used to the greatest extent possible by all the DoD Components for planning, design, and construction . . . of facilities . . .”).

<sup>53</sup> CLIMATE EFFECTS, *supra* note 18, at 2.

lawyers, and engineers rely upon the UFC to design and build new construction projects on military installations. In 2017, Congress began to require that the UFC consider climate-related impacts.<sup>54</sup> It now mandates that any new construction on military installations account for climate change.<sup>55</sup> It states that each installation must:

Identify and assess risks to the installation from the effects of extreme weather and climate change and develop plans to address and mitigate those risks. Weather is the day-to-day environmental conditions at a particular locale measured in terms of temperature, atmospheric pressure, wind, and moisture . . . . Assess the risks related to extreme weather events and climate change phenomena applicable to a specific location as part of a severe weather and climate resiliency analysis to develop appropriate recommendations and plans for the installation.<sup>56</sup>

In 2021, the military updated the landscape architecture and civil engineering portions of the UFC to incorporate climate resilience into planning.<sup>57</sup> While these are promising steps toward addressing climate adaptation challenges, implementation remains difficult. It remains unclear how each military installation plan applies this key term to practical climate adaptation measures—a problem recently highlighted by the GAO.<sup>58</sup> The GAO noted that the DoD guidance “requires that both installation master planning and natural resources planning account for certain potential impacts of climate change, but implementation of these requirements across the department varies.”<sup>59</sup> The GAO also posited that an outdated funding process failed to include climate change adaptation measures in the criteria used to prioritize prospective military construction projects.<sup>60</sup> Further, installation planners lacked updated guidance on construction and renovation that goes beyond building codes and accounts for climate change.<sup>61</sup>

Since this funding-implementation gap was identified, each service has made strides toward better definition and incorporation of the UFC’s discussion of climatic considerations. For example, the Navy Facilities Engineering Command (NAVFAC) issued a handbook for planners to assess

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<sup>54</sup> DEP’T OF DEF., UFC 2-100-01, UNITED FACILITIES CRITERIA (UFC): INSTALLATION MASTER PLANNING 12 (2022).

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> *See id.* at 23.

<sup>58</sup> *See* GAO ADAPTATION, *supra* note 9.

<sup>59</sup> *Id.*

<sup>60</sup> The GAO further noted that “installation planners may believe that climate change adaptation projects are unlikely to successfully compete with other military construction projects for funding.” *Id.*

<sup>61</sup> *Id.*

and evaluate climate impacts on naval installations.<sup>62</sup> The Navy’s efforts were recently highlighted in a report to Congress that described how several buildings were reconfigured in San Diego to take into account climate-related sea level rise.<sup>63</sup>

Second, internal agency regulations are another source of zoning laws that affect national security property. The DoD and each service issues internal regulatory climate guidance that takes into account climate impacts.<sup>64</sup> The DoD issued its first directive on Climate Change Adaptation and Resilience in 2009, and the most recent Climate Adaptation Plan was issued in 2021.<sup>65</sup> The directive states that the DoD must “assess and manage risks associated with the impacts of climate.”<sup>66</sup>

In fulfilling its mission, the directive tasks various offices with the responsibility to address climate change and consider climate impacts. For example, the Assistant Secretary of Defense for Energy, Installations, and Environment serves as the DoD’s primary climate change official and must integrate climate change adaptation and resiliency in the installation planning to include impacts on built and natural infrastructure.<sup>67</sup> The DoD Component Heads must “[i]ntegrate climate change considerations into DoD Component policy, guidance, plans, and operations,” which includes assessing the impacts of climate change on military installations and built infrastructure.<sup>68</sup>

What if the DoD does not follow its own regulatory guidance—can it claim military deference or some generalized national security exemption? As a general matter, no.<sup>69</sup> Absent an express exemption, the military services must comply with the Administrative Procedures Act (APA) and administrative law principles.<sup>70</sup> While the APA does exempt “military

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<sup>62</sup> LEIDOS, INC. & LOUIS BERGER, INC., NAVAL FACILITIES ENG’G COMMAND, CLIMATE CHANGE PLANNING HANDBOOK: INSTALLATION ADAPTATION AND RESILIENCE IN-1 (2017).

<sup>63</sup> CLIMATE EFFECTS, *supra* note 18, at 12.

<sup>64</sup> See DEP’T OF DEF., DEPARTMENT OF DEFENSE CLIMATE CHANGE ADAPTATION PLAN (2021); *see also* DOD Directive 4715.21, *supra* note 10.

<sup>65</sup> DOD Directive 4715.21, *supra* note 10.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 5.

<sup>68</sup> *Id.* at 8. It states in full, “[a]ssess and manage risks to built and natural infrastructure, including changes as appropriate to installation master planning, natural and cultural resource management, design and construction standards, asset management, encroachment management, utility systems, and emergency management operations.” *Id.*

<sup>69</sup> See, e.g., Jonathan Masur, *A Hard Look or a Blind Eye: Administrative Law and Military Deference*, 56 HASTINGS L. J. 441, 512–13 (2005) (describing how the APA’s arbitrary and capricious standard applies to the military).

<sup>70</sup> The APA broadly defines “agency” as “each authority of the Government of the United States, whether or not it is within or subject to review by another agency.” 5 U.S.C. § 551(1) (emphasis added).

authority exercised in the field in the time of war” and “military or foreign affairs functions of the United States,” courts have applied these exemptions primarily to operational and extraterritorial actions.<sup>71</sup> The upshot is that the DoD must comply with its internal climate directives as a matter of both law and policy.

*C. Sovereign Immunity & Environmental Law: Of Increasing Importance for National Security Adaptation Measures*

Beyond these constitutional authorities and internal agency guidance, federal environmental law is of increasing importance for climate adaptation measures.<sup>72</sup> State and local environmental laws only apply to military installations if Congress has waived sovereign immunity—doing so allows citizens to bring a federal agency (including the DoD) to court.<sup>73</sup> Only Congress has the authority to waive sovereign immunity; a waiver cannot be derived from executive branch orders or agency regulations.<sup>74</sup> These sovereign immunity waivers are peppered throughout key environmental statutes, authorizing states and localities to enforce environmental measures on federal facilities.<sup>75</sup> While these statutes were not designed with climate adaptation in mind, they are of increasing relevance for climate adaptation measures and the complete picture of national security law.<sup>76</sup>

When passing federal environmental laws in the 1970s, Congress waived the sovereign immunity in many of these statutes. These waivers have proven a powerful tool to mandate federal agency compliance with environmental law.<sup>77</sup> For example, the sovereign immunity waiver in the Clean Water Act states that:

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This encompasses the Secretary of Defense and the civilian secretaries of the military departments. *See* Mark Patrick Nevitt, *The Operational and Administrative Militaries*, 53 GA. L. REV. 905, 953–60 (2019).

<sup>71</sup> *See* Nevitt, *supra* note 70 (discussing the difference between the judicial review of administrative military matters and operational military matters).

<sup>72</sup> *See, e.g.*, Robin Kundis Craig, *Climate Change Come to the Clean Water Act: Now What?*, 1 WASH. & LEE J. ENERGY, CLIMATE, & ENV'T 9, 24–25 (2010) (arguing that the Clean Water Act can contribute to efforts to deal with climate change).

<sup>73</sup> *See generally* Nevitt, *supra* note 12, at 33–35 (discussing the role of sovereign immunity and describing how the U.S. military complies with the Clean Water Act, Clean Air Act, and other environmental laws).

<sup>74</sup> For a critique of this doctrine, see generally Erwin Chemerinsky, *Against Sovereign Immunity*, 53 STAN. L. REV. 1201 (2001).

<sup>75</sup> *See* Nevitt, *supra* note 12.

<sup>76</sup> *See* Craig, *supra* note 72, at 24–25 (arguing that the Clean Water Act can contribute to efforts to deal with climate change).

<sup>77</sup> *See, e.g.*, Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1112 (D.C. Cir. 1971). Judge Skelly Wright stated, “NEPA, first of all, makes environmental protection a part of the mandate of every federal agency and department.” *Id.*

Each department, [or] agency . . . shall be subject to, and comply with all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity . . . .<sup>78</sup>

The DoD and military services (Army, Navy, Air Force, and Space Force) are subject to and must comply with the major U.S. environmental laws. If they fail to do so, citizen suits can be filed against the military under the APA to enforce compliance.<sup>79</sup> In addition, many environmental laws state that military installations must comply with state and local laws falling under the sovereign immunity waiver's scope.<sup>80</sup> For example, the Clean Water Act addresses the abatement of water pollution, so any state or local environmental law that addresses water pollution control applies to federal property—including military installations.<sup>81</sup> This has increased importance for state and local pollution laws that are also tied to stormwater runoff.<sup>82</sup> The upshot: where there is a clear congressional waiver of sovereign immunity, federal national security property becomes subject to the full menu of federal, state, and local environmental laws.<sup>83</sup>

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<sup>78</sup> 33 U.S.C. § 1323(a). This waiver language is mirrored in other statutes including the Clean Air Act. *See* Clean Air Act, 42 U.S.C. § 7418(a).

<sup>79</sup> The APA lists the military services in the definition of “agency.” 5 U.S.C. § 551(1)(G). The Clean Water Act, for example, has a citizen suit provision. *See* 33 U.S.C. § 1365(a).

<sup>80</sup> Nevitt, *supra* note 12, at 31–45.

<sup>81</sup> 33 U.S.C. § 1323(a).

<sup>82</sup> The EPA has described how climate change increase extreme flooding and stormwater runoff. This, in turn, can overwhelm the capacity of municipal stormwater management systems. *Climate Adaptation and Stormwater Runoff*, EPA (July 5, 2022), <https://www.epa.gov/arc-x/climate-adaptation-and-stormwater-runoff> [<https://perma.cc/9UTT-F876>].

<sup>83</sup> This includes climate mitigation measures—a topic outside the scope of this Essay. The Clean Air Act’s sovereign immunity waiver applies to the DoD’s climate mitigation efforts onboard national security installations. The DoD is the largest single emitter of GHG emissions by institution in the world. NETA C. CRAWFORD, COSTS OF WAR: PENTAGON FUEL USE, CLIMATE CHANGE, AND THE COSTS OF WAR 2 (2019), <https://watson.brown.edu/costsofwar/papers/ClimateChangeandCostofWar> [<https://perma.cc/L3AP-L3PE>]. Brown University’s Watson Institute and Costs of War project estimated that the DoD alone emits more emissions than many midsize European nations. *Id.* With some minor limitations, the Clean Air Act regulates military emissions. The Clean Air Act does waive certain inspection and maintenance requirements for “military tactical vehicles.” 42 U.S.C. § 7418(c). And the President can exempt stationary sources from compliance with the Clean Air Act but must first determine that “the technology to implement such standard is not available and that it is in the national security interests of the United States to do so.” *Id.* at § 7412(i)(4). Each service has publicly committed to reduce their emissions to net zero by 2050. OFF. OF THE ASSISTANT SEC’Y OF THE NAVY FOR ENERGY, INSTALLATIONS, AND ENV’T, *supra* note 41, at 5.



*D. Specific Legislative Measures Focused on Protecting National Security Infrastructure*

In addition to the authorities discussed above, Congress has carved out specific statutory authority for military installations to partner with outside entities to safeguard national security property from climate change.

*1. Readiness and Environmental Protection Integration (REPI) Act: A Promising Authority to Safeguard National Security Infrastructure*

The Readiness and Environmental Protection Integration (REPI) Act allows the DoD to enter into partnerships with property owners *outside* the military fence line.<sup>84</sup> Through REPI, which Congress enacted in 2005, the DOD can access funds to combat encroachment near military bases.<sup>85</sup> Encroachment was initially defined to entail “pressures that adversely affect the military’s use of training and testing lands.”<sup>86</sup> For example, the development of tall buildings adjacent to a military airfield can interfere with military airfield operations or radar activity. When tapping into REPI funding, the military enters into a cost-sharing partnership with an outside group designed to protect land areas outside the military fence line.<sup>87</sup> In doing so, the DoD acquires a property interest in the form of an easement.<sup>88</sup> Since its inception, REPI has been an environmental success story, mitigating encroachment concerns and reducing the “likelihood of land-use conflicts between the base and surrounding communities.”<sup>89</sup>

Building on REPI’s success, Congress expanded REPI authority in 2019 to include climate change in the definition of encroachment.<sup>90</sup> Today, climate adaptation efforts are a core focus of the REPI Program.<sup>91</sup> This expansion authorizes the DoD to spend money to fund projects that maintain or improve military installation resilience,<sup>92</sup> which encompasses the ability

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<sup>84</sup> 10 U.S.C. § 2684a. This authority is used in conjunction with the Sikes Act and Intergovernmental Support Agreements (IGSAs). The Sikes Act allows the DoD to fund natural resource projects. 16 U.S.C. § 670c-1(a).

<sup>85</sup> REPI RESILIENCE, *supra* note 5, at 4.

<sup>86</sup> *Id.* Other examples include incompatible development around defense facilities that cause light pollution or radar spectrum interference that disrupts testing, training, and operations on base. *Id.*

<sup>87</sup> 10 U.S.C. § 2684a. In negotiating these agreements, the DoD acquires a restrictive easement on the parcel of land. *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> REPI RESILIENCE, *supra* note 5, at 4.

<sup>90</sup> *Id.*

<sup>91</sup> 10 U.S.C. § 2684a(a)(2)(B). In the 2019 National Defense Authorization Act, the REPI statute was modified to allow the use of REPI funds to maintain or improve military installation resilience. *Id.*

<sup>92</sup> *Id.*

to withstand both extreme weather events and changes in long-term environmental conditions.<sup>93</sup>

Recent REPI climate adaptation efforts have invested heavily in natural infrastructure solutions as an adaptation strategy—this includes natural infrastructure adaptation efforts that reduce wildfire risk or are designed to slow erosion.<sup>94</sup> As these adaptation efforts take place outside the military fence line, REPI offers climate adaptation benefits for national security and both public and private property. Consider the following three examples where REPI funds are used to fund innovative climate adaptation efforts.

First, a military installation and its surrounding community in Earle, New Jersey sustained over \$50 million in damage from Hurricane Sandy in 2012.<sup>95</sup> Using REPI legal authorities, Naval Weapons Station Earle partnered with the State of New Jersey to fund beach renourishment and a living shoreline designed to reduce storm surge and make the base and surrounding area more climate resilient.<sup>96</sup> These efforts will also improve stormwater capacity and wildfire mitigation—key climate adaptation initiatives.<sup>97</sup> Second, in North Carolina, a Marine Corps Air Base on the eastern shore is threatened by storm surge, erosion, and saltwater intrusion, all of which are exacerbated by climate change.<sup>98</sup> To protect the base, the military is using REPI funds to build a living shoreline.<sup>99</sup> Third, in Hampton Roads, Virginia, a military base is partnering with the National Fish and Wildlife Foundation and Virginia Institute of Marine Sciences to restore a shoreline to reduce flood risk to the installation and neighboring property.<sup>100</sup> On that basis, REPI funds are being used to build a living shoreline and oyster reef habitats.<sup>101</sup> In each of these examples, REPI is enabling climate adaptation efforts that will benefit military installations and their surrounding communities alike.

Promisingly, many of these projects are funded via the “REPI Challenge,” where state and local governments and conservation groups

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<sup>93</sup> REPI RESILIENCE, *supra* note 5, at 9.

<sup>94</sup> *Id.* at 5. In addition to REPI, the Sikes Act authorizes cooperative agreements between the DoD and state or local governments, nongovernmental organizations, Indian tribes, and other federal agencies. 16 U.S.C. § 670c-1.

<sup>95</sup> REPI RESILIENCE, *supra* note 5, at 15.

<sup>96</sup> REPI RESILIENCE, *supra* note 5, at 15. For a discussion of “living shorelines,” see William J. Neal et. al, *Why coastal regulations fail*, 156 *Oceans & Coastal Management* 21, 29 (2018) (defining living shorelines as “stabilization designs that combine shore-hardening structures with plantings of natural vegetation”).

<sup>97</sup> *Id.* at 15.

<sup>98</sup> *Id.* at 18.

<sup>99</sup> *Id.* at 18.

<sup>100</sup> *Id.* at 16.

<sup>101</sup> *Id.*

propose projects on which to partner with the DoD.<sup>102</sup> This taps into the local expertise of the ecological surroundings while offering the possibility for unique partnerships to emerge. In a climate “win-win,” both the DoD and the surrounding communities receive a climate benefit from these REPI-based partnerships.

## 2. *Recent Congressional Actions on National Security Adaptation*

In addition to updating REPI to address climate change, Congress has passed several measures addressing adaptation efforts for national security infrastructure. These measures are funneled through the National Defense Authorization Act (NDAA), one of the few “must pass” annual pieces of legislation.

In a time of climate politicization, these measures have enjoyed bipartisan support, keeping the “climate flame” from extinguishing while it floundered in other contexts.<sup>103</sup> For example, in the 2018 defense spending bill, Congress required the DoD to identify the installations most vulnerable to climate change.<sup>104</sup> The DoD responded with a report that summarized climate effects and resulting vulnerabilities.<sup>105</sup> It identified seventy-nine installations vulnerable to one of five climate-related events (recurrent flooding, drought, desertification, wildfires, and thawing permafrost).<sup>106</sup> The majority of these bases are at risk of recurrent flooding and wildfires—risks that increase over time.<sup>107</sup> While this legislation did not come with additional funding and resources, it nevertheless demonstrated that certain climate efforts can overcome political paralysis: it was signed into law by President Trump and a Republican Congress, both hostile to climate legislative efforts in other contexts.

In the 2019 defense spending bill, Congress passed several measures addressing national security installation resilience. Congress mandated that

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<sup>102</sup> Dep’t of Def., *2024 REPI Challenge Request for Proposals*, READINESS & ENV’T PROT. INTEGRATION, <https://www.repi.mil/Buffer-Projects/REPI-Challenge/> [<https://perma.cc/R44K-SH79>].

<sup>103</sup> President Trump famously dismissed climate change as a “Chinese hoax” and announced his withdrawal from the Paris Climate Agreement. “The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.” Donald Trump (@realDonaldTrump), TWITTER (Nov. 6, 2012, 1:15 PM), <https://twitter.com/realDonaldTrump/status/265895292191248385> [<https://perma.cc/8CSL-MFVG>]; see also Rebecca Herscher, *U.S. Officially Leaving Paris Climate Agreement*, NPR (Nov. 3, 2022, 5:28 PM), <https://www.npr.org/2020/11/03/930312701/u-s-officially-leaving-paris-climate-agreement> [<https://perma.cc/A3YH-6Y38>].

<sup>104</sup> National Defense Authorization Act for Fiscal Year 2018, Pub L. No. 115-91, § 335, 131 Stat. 1283, 1358 (2017).

<sup>105</sup> OFF. OF THE UNDER SEC’Y OF DEF. FOR ACQUISITION & SUSTAINMENT, DEP’T OF DEF., REPORT ON EFFECTS OF A CHANGING CLIMATE TO THE DEPARTMENT OF DEFENSE 4 (2019).

<sup>106</sup> CLIMATE EFFECTS, *supra* note 18, at 4.

<sup>107</sup> *Id.* at 5.

any new construction on military installations must first identify whether the building will be in the 100-year floodplain.<sup>108</sup> For military construction built in the 100-year floodplain, a mitigation plan must be developed to provide for an additional two feet above the base flood elevation (three feet for mission critical facilities).<sup>109</sup> As discussed in Part I, Congress required that new military construction design incorporate “changing environmental conditions” into the UFC.<sup>110</sup> As part of this analysis, military planners must use peer-reviewed scientific studies from the National Climate Assessment and National Academies of Science.

In 2020, Congress established the Climate Security Advisory Council, requiring the Intelligence Community (IC) and federal service agencies to work together to “advance insights on the national security impacts of climate change.”<sup>111</sup> By April 2023, the DoD will complete “climate exposure assessments” on all major installations outside the United States.<sup>112</sup>

### III. BROADER NATIONAL SECURITY ADAPTATION INSIGHTS

*“Rising waters, scorching heat, and other severe weather conditions could force ‘mass migration events[,] political crises, civil unrest,’ and ‘even state failure.’”*

—Justice Kagan<sup>113</sup>

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<sup>108</sup> John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, § 2805(a)(1), 132 Stat. 1636, 2262 (2018).

<sup>109</sup> *Id.* See, e.g., Shana Udvardy, *New Defense Bill Strengthens the Militaries Flood & Energy Readiness and Saves Taxpayer Dollars—All While Addressing Climate Change*, UNION OF CONCERNED SCIENTISTS: THE EQUATION (Aug. 7, 2018, 10:00 AM), <https://blog.ucsusa.org/shana-udvardy/new-defense-bill-strengthens-the-militaries-flood-readiness-and-saves-taxpayer-dollars-all-while-addressing-climate-change/> [<https://perma.cc/22GQ-P4K6>] (detailing requirements of the NDAA FY 2019).

<sup>110</sup> John S. McCain National Defense Authorization Act for Fiscal Year 2019 § 2805(c). This includes a formal definition of military installation resilience and climate and energy resiliency. “The term ‘military installation resilience’ means the capability of a military installation to avoid, prepare for, minimize the effect of, adapt to, and recover from extreme weather events, or from anticipated or unanticipated changes in environmental conditions, that do, or have the potential to, adversely affect the military installation or essential transportation, logistical, or other necessary resources outside of the military installation that are necessary in order to maintain, improve, or rapidly reestablish installation mission assurance and mission-essential functions.” *Id.* § 2805(e). “The term ‘energy and climate resiliency’ means anticipation, preparation for, and adaptation to utility disruptions and changing environmental conditions and the ability to withstand, respond to, and recover rapidly from utility disruptions while ensuring the sustainment of mission-critical operations.” *Id.* § 2805(d)(3).

<sup>111</sup> 50 U.S.C. § 3060; DEP’T OF DEF., CLIMATE RISK ANALYSIS 14 (2021).

<sup>112</sup> OFF. OF THE UNDER SEC’Y OF DEF., *supra* note 28, at 28. Most environmental laws and REPI lack an express extraterritorial application and do not apply to national security property located overseas. Still, internal the DoD guidance *does* apply.

<sup>113</sup> *West Virginia v. EPA*, 142 S. Ct. 2587, 2627 (2022) (Kagan, J., dissenting) (citing DEP’T OF DEF., CLIMATE RISK ANALYSIS 8 (2021)).

What insights can be gleaned by analyzing the law of national security adaptation? First, the bipartisan nature of recent legislative victories and agency action on climate change adaptation can help validate the concept of climate risk. Second, REPI and other national security adaptation authorities can assist climate adaptation efforts outside military installations, serving as a laboratory for national climate adaptation.

*A. Validating Climate Risk: The Military-Congressional-Climate Complex*

In 2014, Professor Sarah Light argued that a “military-environmental” complex was emerging as a subset of the military-industrial complex.<sup>114</sup> In the “military-environmental” complex, investment in climate adaptation projects for the military has helped to spur environmental and energy innovation throughout industry.<sup>115</sup> In recent years, this military-environmental complex has been embraced by both parties in Congress, with a particular focus on climate change. Since both parties have embraced this kind of investment, the DoD’s increasing focus on climate adaptation may, in turn, help depoliticize the concept of climate risk.

The DoD has been dealing with climate risk for years because it has a deep culture of planning for risk, threats, and uncertainties. Therefore, climate change adaptation planning fits neatly into the DoD’s risk planning calculus. The military knows that climate change is occurring and is developing tools and resources to prepare for that risk. Even the Supreme Court has taken notice. In *West Virginia v. EPA*, Justice Kagan cited the DoD’s Climate Risk Analysis study as a way to highlight climate change’s existential threat from an objective source.<sup>116</sup> In doing so, she cited the DoD’s work to bolster the EPA’s authority to act under the Clean Air Act.<sup>117</sup>

Unique statutory authorizations and a dedicated funding stream (the annual defense budget) provide a consistent funding source for mitigating climate risk. Congress and local leaders are incentivized, too, to safeguard the installations in their home districts and protect the jobs and economic benefits associated with national security property. During my time in Norfolk, I witnessed how policymakers from different backgrounds and parties would come together to find solutions to help protect national security infrastructure. So, it is perhaps not surprising that congress members from

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<sup>114</sup> Sarah E. Light, *The Military-Environmental Complex*, 55 B.C. L. REV. 879, 879 (2014).

<sup>115</sup> *Id.*

<sup>116</sup> *West Virginia v. EPA*, 142 S. Ct. at 2627.

<sup>117</sup> *Id.* (“Rising waters, scorching heat, and other severe weather conditions could force ‘mass migration events[,] political crises, civil unrest,’ and ‘even state failure.’” (quoting DEP’T OF DEF., CLIMATE RISK ANALYSIS 8 (2021))).

all political stripes have passed national security climate adaptation measures—a rare instance of bipartisan agreement on climate.

This new “military-congressional-climate complex” validates the concept of climate risk by depoliticizing climate change adaptation. Notably, the DoD workforce is largely restricted from engaging in political activities.<sup>118</sup> Military members can vote, but they cannot participate in a campaign rally or be actively engaged in a partisan political campaign.<sup>119</sup> Because of the military’s apolitical nature, one scholar has described the DoD as the “unequivocal validator of climate science.”<sup>120</sup> As such, because they are seen as apolitical, national security strategies, risk reports, and intelligence estimates can perform an important function in validating the climate risk facing the nation. This stands in contrast to the politicization of climate science that hampers climate progress in other contexts. The military and intelligence communities made climate progress in recent years across administrations of both parties.<sup>121</sup> Beyond the progress made in adaptation legislation throughout defense spending bills, the DoD continued to develop and promulgate agency climate plans and intelligence threat assessments. During the Trump Administration, for example, the Office of the Director of National Intelligence issued a new threat assessment that expressly linked climate change with national security threats.<sup>122</sup>

*B. Applying Innovative National Security Adaptation Tools & Authorities beyond National Security Infrastructure*

While the Readiness and Environmental Protection Integration (REPI) Act, Sikes Act, and Intergovernmental Support Agreements (IGSAs) are designed to protect national security infrastructure, they have broader implications and benefits outside military installations. As discussed in Part II, climate adaptation authority on private property is held at the state and local level. Too often, local and state leaders are hampered by funding and political restraints in pursuing innovative climate adaptation action. In contrast, the DoD’s budget is enormous, and yearly defense spending bills offer a steady legislative vehicle to fund adaptation projects. Members of

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<sup>118</sup> *DOD Directive 1344.10: Political Activities by Members of the Armed Forces*, DEP’T OF DEF. (Feb. 19, 2008), <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/134410p.pdf> [<https://perma.cc/T6HB-F74Y>].

<sup>119</sup> *Id.*

<sup>120</sup> Sarah E. Light, *Valuing National Security: Climate Change, the Military, and Society*, 61 UCLA L. REV. 1772, 1778, 1793 (2014) (arguing that the “Military-Environmental Complex . . . has the potential to unleash important spillover effects in the sphere of values[,]” behavior, and policy).

<sup>121</sup> See discussion, *infra* Part II.

<sup>122</sup> COATS, *supra* note 33.

Congress from both parties want to protect their military installations, which are powerful economic vehicles owned by the U.S. government.<sup>123</sup>

In the face of ad hoc state and local adaptation funding, REPI partnerships could serve as a national climate “adaptation laboratory.” Because REPI projects are proposed from the “bottom-up” from state and local actors, there is an immediate buy-in from prospective partners. Already, insights are being developed that can be more applied to state and local governmental adaptation efforts. The REPI projects described above suggest that favoring nature-based adaptation solutions over man-made solutions (e.g., raising sea walls) can be more cost effective and can amplify existing ecological benefits outside the fence line.<sup>124</sup> Natural infrastructure already exists in some capacity, unlike “grey” infrastructure.<sup>125</sup> The DoD has favored natural solutions over grey solutions. These natural buffers can serve as an initial line of defense to existing, built infrastructure.<sup>126</sup>

#### CONCLUSION

*“Of all the shared problems we face, climate change is the greatest and potentially existential for all nations.”*

—President Biden’s 2022 National Security Strategy<sup>127</sup>

To date, much of the scholarly literature on climate adaptation focuses on safeguarding private, nonfederal property from sea level rise, extreme weather, and other climate harms.<sup>128</sup> Still, there is a growing awareness that climate change threatens U.S. national security infrastructure, imperiling U.S. national security interests and the military’s own capacity to respond to

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<sup>123</sup> Cf. Mark Patrick Nevitt, *On Environmental Law, Climate Change, and National Security Law*, 44 HARV. ENV’T L. REV. 321, 360 (2020) (discussing how some members of Congress have focused on the national security implications of climate in their legislative strategies).

<sup>124</sup> See REPI RESILIENCE, *supra* note 5, at 6.

<sup>125</sup> See REPI RESILIENCE, *supra* note 5, at 6.

<sup>126</sup> See REPI RESILIENCE, *supra* note 5, at 6.

<sup>127</sup> WHITE HOUSE, *supra* note 7, at 9.

<sup>128</sup> See J.B. Ruhl, *Climate Adaptation Law*, in GLOBAL CLIMATE CHANGE AND U.S. LAW 688 (Michael Gerrard & Jody Freeman eds., 2023). Climate adaptation is broadly defined to encompass “the adjustments that society or ecosystems make to limit negative effects of climate change. It can also include taking advantage of opportunities that a changing climate provides.” Cal. Assem. Comm. on Nat. Res., Bill Analysis, S. 246, 2015-2016 Leg., Reg. Sess., at 5 (Cal. 2015), [http://www.leginfo.ca.gov/pub/15-16/bill/sen/sb\\_0201-0250/sb\\_246\\_cfa\\_20150710\\_120202\\_asm\\_comm.html](http://www.leginfo.ca.gov/pub/15-16/bill/sen/sb_0201-0250/sb_246_cfa_20150710_120202_asm_comm.html) [<https://perma.cc/8YEL-LW56>]. The DoD defines adaptation as “[a]djustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative efforts.” OFF. OF THE UNDER SEC’Y OF DEF., *supra* note 28, at 2. The study of environmental security has been around for decades and relates to the climate security issues discussed in this paper.

climate-driven disasters.<sup>129</sup> In order to respond to this new environmental enemy, the military has had to bring together constitutional law, property law, agency regulations, and environmental law. This convergence forms the underpinnings of the law of national security adaptation.

To be sure, climate change presents an enormous challenge to our national security and our ability to aid and support allies around the globe. Still, innovative statutory authorities—such as the REPI Program—offer an opportunity for broader climate adaptation efforts. Furthermore, yearly defense spending bills activate national security adaptation legislation, demonstrating that congressional action on climate can occur when national security is at risk. After all, members of Congress of all political stripes are incentivized to safeguard federal installations within their home districts.<sup>130</sup> The law of national security adaptation offers broader, normative insights for adaptation efforts outside the military fence line.

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<sup>129</sup> See, e.g., Michael Birnbaum, *As Wildfires Grow, Militaries are Torn Between Combat, Climate Change*, WASH. POST (Sept. 26, 2022, 6:00 AM), <https://www.washingtonpost.com/climate-environment/2022/09/26/europe-military-wildfires-warming-slovenia/> [https://perma.cc/manage/delete-link/7CRN-CRNC].

<sup>130</sup> A similar argument has been made by Professor Sarah Light. Light, *supra* note 114, at 1793 (arguing that the “DoD’s interests are intertwined with the interests of members of Congress, the President, and the private sector”). Professor Light’s argument was supported by a string of climate adaptation measures from 2016-2020. See discussion, *infra* Part III.