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Environmental Protection, the Military, and Preserving the Balance: “Why it Matters, in War and Peace”

*Dr. Kurt Smith **

I. INTRODUCTION

Scientists continue to learn more about the causes and impacts of environmental degradation. Anthropogenic causes of environmental degradation continue to be an area of concern both within the United States and internationally. In the United States, many environmental laws have been in place since the 1970s. However, the Clean Air Act, the Clean Water Act, the Resource Conservation Recovery Act, the Endangered Species Act, and others have largely been viewed as effective.¹ Despite this fact, global concern about the protection of the environment continues. This article will not only explore how environmental policy develops but will also examine the military exemption process from many of these environmental laws. The article will also give some shape to the size and scope of military polluting. Some of the questions examined in this article are: (1) is the military impactful through its operations on the environment?; (2) is military preparedness harmed or helped by environmental regulation?; and, (3) can environmental policy makers and the military pursue policies and international cooperation that minimize impacts to the environment without compromising military preparedness? Finally, the article will suggest ways in which those involved in governance and planning can address the problem.

There are two presuppositions that should be kept in mind while reading this article. First, pollution does not respect geo-political boundaries and moves where it wants.² As such, international solutions will need to be pursued in the future to be effective. These solutions are beginning

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¹ See generally A. ROGER GREENWAY, ENVIRONMENTAL PERMITTING HANDBOOK (McGraw Hill Pro. ed., 2000).

² See generally Michael V. McGinnis et al., *Bioregional Conflict Resolution: Rebuilding Community in Watershed Planning and Organizing*, 24 ENV'T MGMT. 1 (1999).

to take place internationally as we see heightened concerns expressed in the Paris Agreement, which aims for international cooperation to slow the pace of environmental damage and global warming.³ It should be noted that 193 countries have signed on with only three countries refusing to take part: United States, Nicaragua, and Syria.⁴ Admittedly, industrialized nations have more to lose in a carbon-based economy. However, full participation especially from industrialized nations will likely have the greatest impact on the climate.⁵ While much of the private sector economy within the United States is managed through a system of permits and monitoring, the United States government has chosen to exempt the U.S. military from many environmental rules.⁶

The second presupposition is that our military economy and its corresponding environmental footprint rivals that of a large developed nation. The budget of the United States Department of Defense is routinely more than \$600 billion and continues to increase in every annual appropriations funding request.⁷ If we examined the budget of the United States Department of Defense, it would surpass the military spending of the next ten countries combined, including China and Russia.⁸ Only twenty-four nations in the world possess a higher annual GDP than the annual budget of the United States Department of Defense.⁹ Excessive defense spending has the potential to cause irreparable damage to the environment and in some cases produces high costs for remediation, or worse, something that cannot be fixed at all. With its status as a major environmental polluter, the United States military has the ability to create meaningful solutions to critical environmental challenges.

³ Chloe Thompson, *Our Climate is Our Security: National security and defense officials are recognizing climate change as the threat that it is*, U.S. NEWS (Aug. 1, 2017, 1:30 PM), <https://www.us-news.com/opinion/world-report/articles/2017-08-01/the-pentagon-finally-gets-it-climate-change-is-a-national-security-threat> [<https://perma.cc/753K-GMKK>]; Ben Wolfgang, *Developing nations in Paris climate accord threaten to keep polluting unless they're paid*, WASH. TIMES (June 5, 2017), <https://m.washingtontimes.com/news/2017/jun/5/paris-climate-agreement-shares-nations-wealth/> [<https://perma.cc/Q7KX-T5AG>].

⁴ Wolfgang, *supra* note 3.

⁵ *Id.*

⁶ GREENWAY, *supra* note 1; *World military spending: Increases in the USA and Europe, decreases in oil-exporting countries*, STOCKHOLM INT'L PEACE RSCH. INST. (Apr. 24, 2017), <https://www.sipri.org/media/press-release/2017/world-military-spending-increases-usa-and-europe> [<https://perma.cc/U2N4-QWX3>] [hereinafter *World military spending*]; ROBERT MELTZ, CONG. RSCH. SERV., RS21217, EXEMPTIONS FOR MILITARY ACTIVITIES IN FEDERAL ENVIRONMENTAL LAWS (2002), https://www.everycrsreport.com/files/20020618_RS21217_6b7c70dcd202e778c03741fbb6a4d68690b80c1e.pdf.

⁷ *Id.*

⁸ *U.S. Defense Spending Compared to Other Countries*, PETER G. PETERSON FOUNDATION (May 13, 2020), https://www.pgpf.org/chart-archive/0053_defense-comparison [<https://perma.cc/WBS4-W49Q>].

⁹ *Id.*

II. DISCUSSION

A. *The Environmental Movement and Rational Incremental Policy Development*

The environmental movement in the United States can best be described as operating within a model of bounded rationality.¹⁰ More specifically, policy decisions impacting the environment were made using an anthropogenic commodity calculation. This is evidenced through the historically excessive resource extraction and expansion of agricultural lands.¹¹ When resources were needed to support the industrialization of America and build the nation into what it is today, few would likely question the use and exploitation of resources. Jobs were added, quality of life continued to improve, and very few ill effects on the environment were measured or understood by science.

Without government controls, the exploitation of natural resources was based not only upon human needs but also its ability to support industrialization.¹² Degradation of environmental resources formerly operated like a tragedy of the commons. In an essay entitled *The Tragedy of the Commons*, Garrett Hardin explained that farmers were not restricted from grazing cattle on the commons.¹³ Driven by specific interests and seeking prosperity, farmers overgrazed the commons and pushed the resource beyond the carrying capacity.¹⁴ Given our current understanding of science, the need to regulate our resources from unrestricted free riding or polluting is well-understood. Our understanding of the limitations of natural resources has given rise to a host of environmental laws and protections we view as normative and necessary to protect our existing resources and ensure their availability for future generations. Globally, like a tragedy of the commons, industrialized nations operate without international agreements, moving pollution around the globe unrestricted.¹⁵

The metaphor of the commons is often used as an argument against rational decision-making, in which decisions are made rationally

¹⁰ See generally JAMES G. MARK & HERBERT A. SIMON, ORGANIZATIONS (Wiley, 1st ed. 1958).

¹¹ *A Historical Perspective*, U.S. FOREST SERV., <https://www.fs.fed.us/forestmanagement/aboutus/histperspective.shtml> [<https://perma.cc/RL4B-WYZM>] (Oct. 23, 2020); See generally OLLI TAHOVEN, ECONOMIC SUSTAINABILITY AND SCARCITY OF NATURAL RESOURCES: A BRIEF HISTORY (2000), <https://media.rff.org/documents/RFF-IB-00-tahvonon.pdf>.

¹² TAHOVEN, *supra* note 11.

¹³ See generally Garrett Hardin, *The Tragedy of the Commons*, 162 AM. ASS'N FOR ADVANCEMENT SCI. 1243 (1968).

¹⁴ *Id.*

¹⁵ *Id.*

based on the best information available, creating the optimal choice.¹⁶ This metaphor is often set against the rational choice decision-making model to illustrate that in matters relating to natural resources and the environment, intervention or regulation is sometimes warranted. Watersheds can provide an example of this as they do not respect any political divisions. They are a finite resource and are required for life-sustaining purposes. It might be expedient and profitable for corporations and businesses to dump untreated industrial waste into a river, but, in time, the resource for those up and down the river will be diminished, impacting human health and even the economy. If everyone has unrestricted free access to use a finite resource, such as a river, they will inevitably exploit and damage it to increase profitability. In time, the entire resource will be unusable to everyone. In an essay titled the “Science of Muddling Through,”¹⁷ Charles Lindblom builds on the idea of rational choice theory and describes it as being captured largely by information that is bounded by time. This muddling through is a dynamic process that learns and builds on new information, taking into account the results of the past. In many respects, these two models describe the theory behind and the evolution of environmental policy.

As an example of incremental environmental policy in the United States, one could look to the development of our land resource policy, which is based on rational assessments at a given point in time. The Homestead Act of 1872 was created in response to the seemingly limitless availability of land and a desire to fully settle the west.¹⁸ The Act would provide a permanent grant of ownership for anyone who worked the land for a set number of years, providing a powerful incentive to settle and tame what seemed like a limitless resource in the nineteenth century.¹⁹ The Homestead Act proved to be a vital piece of legislation that ensured the United States became more fully settled.²⁰ Enforcement of the Act continued until the twentieth century and helped encourage the settling of portions of Alaska.²¹

Because the land was now largely transformed for agricultural purposes and there and there was a fear of losing a natural resource inventory for the future, legislators championed two major efforts. The Organic

¹⁶ THOMAS A. BIRKLAND, AN INTRODUCTION TO THE POLICY PROCESS: THEORIES, CONCEPTS, AND MODELS FOR PUBLIC POLICY MAKING 399 (COLOM. UNIV. PRESS, 5TH ED. 2020).

¹⁷ See generally Charles E. Lindblom, *The Science of “Muddling Through”*, 19 PUB. ADMIN. REV. 79 (1959).

¹⁸ Robert Fink, *Homestead Act of 1862*, ENCYC. BRITANNICA, <https://www.britannica.com/topic/Homestead-Act> [<https://perma.cc/W2L8-UGRK>] (Aug. 27, 2020).

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

Act of 1897 sought to protect our nation's forests and ensure a ready supply of timber resources for a growing nation.²² This Act was followed by the Weeks Law of 1911, which attempted to restore lands that had been damaged through abusive agricultural practices.²³ The passage of this Act marked the creation of the United States Forest Service, which was charged with managing public land for natural resources.²⁴ More than sixty years later, the National Forest Management Act of 1976 not only protected biodiversity in our national forests but also created a mechanism to ensure public involvement in forest management and planning.²⁵ The Act provided for necessary logging but recognized the value of water quality protection, outdoor recreation, and biodiversity.²⁶ This change in philosophy came about as new understandings from science were developed and new priorities were identified by the public. The effort to address global pollution has followed a similar pattern with nations now committing to limit previously unknown carbon emissions harmful to the world over the next one-hundred years.²⁷ As scientific knowledge expanded, treaties like the Paris Agreement and Montreal Protocol, which were unthinkable just a few generations ago, became the new norm.

Another example of how environmental policy proceeded rationally and incrementally is the U.S. military's dumping of chemicals in the ocean after World War I and well into the 1970s. Before 1970, scientists believed that the expansiveness of ocean waters would absorb and dilute chemical agents, rendering them harmless over time.²⁸ However, the improved understanding of the harmful effects of these chemicals on human health and marine life led to a prohibition of chemical disposal into the oceans by 1972.²⁹ Presently, the United States military has an inventory of more than seventy sites, which would cost billions of dollars to clean up.³⁰ In some cases, scientists do not know if using remediation to fix the prob-

²² *A Historical Perspective*, *supra* note 11.

²³ *Id.*

²⁴ *Id.*

²⁵ *National Forest Management Act (NFMA)*, SIERRA FOREST LEGACY, https://www.sierraforest-legacy.org/FC_LawsPolicyRegulations/FPP_NFMA.php [<https://perma.cc/74JY-SEYD>] (Oct. 23, 2020).

²⁶ *Id.*

²⁷ DAVID M. BEARDEN, CONG. RSCH. SERV., RL33432, U.S DISPOSAL OF CHEMICAL WEAPONS IN THE OCEAN: BACKGROUND AND ISSUES FOR CONGRESS (2006) [hereinafter RL33432]; DAVID M. BEARDEN, CONG. RSCH. SERV., RS22149, EXEMPTIONS FROM ENVIRONMENTAL LAW FOR THE DEPARTMENT OF DEFENSE: BACKGROUND AND ISSUES FOR CONGRESS (2007) [hereinafter RS22149].

²⁸ RL33432, *supra* note 27; RS22149, *supra* note 27.

²⁹ RL33432, *supra* note 27; RS22149, *supra* note 27.

³⁰ RL33432, *supra* note 27; RS22149, *supra* note 27.

lem would create more issues by introducing more pollution to these environments and risking greater disturbance to the ecosystems living within them.³¹

The theory of punctuated equilibrium discusses how policy can be dominated by large periods of incremental rationality, creating a policy monopoly for one interest or point of view.³² This long period of stasis is sometimes upset by a sudden and drastic change in understanding by the public—this often takes the form of a crisis.³³ The response to this crisis can create rapid and accelerated changes in policy.³⁴ The concept borrowed from the field of evolutionary biology provides an explanation for the cascade of environmental legislation beginning in the 1970's and still impacting us today.³⁵ The catalyst for this period of punctuated equilibrium began when Rachel Carson published her book, *Silent Spring*, in 1962, which implicated the use of Dichlorodiphenyltrichloroethane (DDT), a commonly-used pesticide at the time, with harmful effects to the environment.³⁶ Another example of a catalyst for this period of environmental awareness was when the Cuyahoga River in Ohio caught fire from excessive pollution by nearby manufacturing plants.³⁷ Examples like these caught the attention of the American public and created a wave of legislation aimed at environmental protection.³⁸

Another example that highlights the theory of punctuated equilibrium is the period of stasis in homeland security prior to the war on terrorism. After the attacks on the World Trade Center in New York City and the Pentagon in Washington D.C. on September 11th, 2001, the U.S. enabled its military to move swiftly and with immense agility to train for and respond to terrorist threats against the homeland.³⁹ President George W. Bush issued Executive Order 13,235 shortly thereafter, which authorized the military to undertake any construction activities deemed necessary by the Secretary of Defense in response to direct attacks on the United States.⁴⁰ This order exempted the military from most environmental laws

³¹ RL33432, *supra* note 27; RS22149, *supra* note 27.

³² FRANK R. BAUMGARTNER & BRYAN D. JONES, *AGENDAS AND INSTABILITY IN AMERICAN POLITICS* 155 (Univ. Chi. Press, 2nd ed. 2009).

³³ *Id.*

³⁴ *Id.*

³⁵ *The Origins of EPA*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/history/origins-epa> [<https://perma.cc/7ZPQ-NPDZ>] (Nov. 19, 2018).

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ Exec. Order No. 13,235, 66 C.F.R. § 224 (2001).

⁴⁰ *Id.*

that constrained perceived military preparedness and empowered the military to invoke this exemption process.⁴¹ Unfortunately, global warming may present another example of a punctuated equilibrium as the scientific community continues to warn of a tipping point in the carbon deficit from which we may not be able to recover.⁴²

B. *Impacts and Scope of Military Polluting*

Examples have emerged of serious environmental contamination at and near military installations, which have led to sickness and lawsuits; in some cases, the contamination calls into question the care of military personnel and their families residing on these military installations. These examples also provide us with a basis for why the U.S. should understand that military preparedness and environmental degradation are inextricably linked. In many cases, these regulations exist to protect not just the common interests but also military members and their dependents living at or around military installations. This assertion bolsters the argument that environmental protections and national security should not be viewed and evaluated as competing with one another. Pollution at military bases is so widespread that more than 900 superfund sites are attributed to the military.⁴³ Further concern is warranted when you consider that environmental regulations at U.S. military bases overseas do not undergo the same types of environmental review as domestic military installations.⁴⁴

Very few countries will consume as much fossil fuel as the U.S. military because of its vast airpower, command of the seas, a huge land force, and a training cycle that never ends.⁴⁵ As such, it is estimated they may account for 5% of all current climate change emissions.⁴⁶ While the signing of the Paris Agreement was heralded by progressives as an overdue step of the previous administration's refusal to sign the treaty, President Obama exempted the military by executive order but still required all other federal agencies to reach greenhouse emission targets by 2020.⁴⁷ Accordingly, the military has essentially become a country within a country

⁴¹ *Id.*

⁴² Thompson, *supra* note 3.

⁴³ John W. Hamilton, *Contamination at U.S. Military Bases: Profiles and Responses*, 35 STAN. ENV'T L. REV. 223 (2016).

⁴⁴ *Id.*

⁴⁵ H. Patricia Hynes, *War and Warming: Can We Save the Planet Without Taking on the Pentagon?*, PORTSIDE (Jan. 28, 2017), <http://portside.org/2017-01-28/war-and-warming-can-we-save-planet-without-taking-pentagon> [<https://perma.cc/AP3E-SF86>].

⁴⁶ *Id.*

⁴⁷ Lisa Savage, *Elephant In The Room: The Pentagon's Massive Carbon Footprint*, COUNTERPUNCH (July 23, 2015), <http://www.counterpunch.org/2015/07/23/72279/> [<https://perma.cc/2YSA-4SDX>].

with respect to its level of pollution. While concerns about the Department of Defense's role in environmental degradation continue to exist, it can also be identified as a potential source of global remedy and improvement.

C. The precautionary principle as a guide in policy making and the environment

For decades, society has generally viewed the environment as having very few bounds and possessing a large recuperative ability that prevents it from permanent impairment. This misunderstanding, in essence, created a free rider principle that likely enabled the creation of serious and, in many cases, irreparable environmental damage. The general realization in the last decade that the earth and its resources are not only finite and necessary to life but also can be irreparably harmed has given rise to the concept of the precautionary principle.⁴⁸ When enough scientific evidence is in place to establish reasonable grounds for concern that an action may have dangerous effects on the environment, the precautionary principle dictates that society should not continue with that particular action.⁴⁹ Essentially, when human actions will cause long-term or permanent consequences to the environment, the precautionary principle warns us to prevent and avoid that action.⁵⁰ Policy makers going forward must take this principle into account when making decisions that have potential negative ramifications on human health and well-being for thousands of years.⁵¹ When it comes to the long term protection of ecosystem services provided by land, air, and water, reliance on anything except the precautionary principle may fall short. The potential of long-term impacts to human life and well-being may be the most rationally based lens through which policy makers can use moving forward. While issues of national defense can create a sense of urgency and pressure to jettison environmental considerations, the precautionary principle instructs governments and militaries to move more slowly, engage with the best available science, and work to find ways to meet the needs of both a burgeoning military and a finite life-sustaining environment. Properly viewed, both can be prioritized as matters of national defense.

⁴⁸ See generally David Kriebel et al., *The Precautionary Principle in Environmental Science*, 109 ENV'T HEALTH PERSP 871 (2001).

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

D. *International relations and global cooperation*

1. Importance of International Governance

The absence of laws and governance between nations gives rise to the idea of a type of anarchy within the sphere of international relations. In that way, it is like the metaphor presented in the tragedy of the commons. There is no impediment to self-interest for national security even at the expense of other nations. This strong sense of self-preservation and national security continues to drive military defense preparedness and can create short sightedness as it relates to environmental protections.⁵² One might expect an era of international environmental cooperation if nations begin to view the health of the environment as an essential element of national defense and preparedness. While schools of Liberal thought, in regard too, international relationships would be more inclined to pursue a course of cooperation with other nations, even outside of defense interests, proponents of Realism would be less inclined. One could argue, however, that both schools of thought would more readily pursue environmental protections if the link between environmental and military interests were better understood. There is growing evidence to suggest that the trend to understand the two together is taking hold by military policymakers.⁵³ This trend has the potential to bring great change to long-standing and immense defense systems with a large appetite for natural resources and the ability to degrade them.

2. Exemptions in Environmental Regulations in the Military

One argument against the need to enforce strident environmental regulation with regard to the U.S. military and all standing armies, is the potential resulting impediment on the military's training abilities. From the start of the major U.S. environmental movement in the 1970's, there has been a rise in the amount of environmental legislation enacted by the U.S. Congress.⁵⁴ All of these laws have posed significant challenges to military compliance with the corresponding regulations associated with specific provisions of the Clean Air Act, the Clean Water Act, and the Endangered Species Act. To assist the military, certain provisions within each law provide exemptions from some environmental regulations. One such provision permits the president to exempt any emission source if they

⁵² Hardin, *supra* note 13.

⁵³ Thompson, *supra* note 3; Joshua Zaffos, *U.S. Military Forges Ahead with Plans to Combat Climate Change*, SCI. AM. (April 2, 2012), <https://www.scientificamerican.com/article/us-military-forges-ahead-with-plans-to-combat-climate-change/> [<https://perma.cc/H8X5-8C9F>].

⁵⁴ Meltz, *supra* note 6.

determine it to be “in the paramount interest of the United States.”⁵⁵ Most of these exemptions are granted for a period of two years with a reassessment at the end of that period for an additional year of exemption.⁵⁶ In short, the president can assess any relevant security interest and grant an exemption.⁵⁷ Another example of certain exemption provisions dictate that all U.S. weaponry, equipment, aircraft, and vehicles that are uniquely military in nature are exempt from the Clean Air Act and Clean Water Act.⁵⁸

While most states require citizens to annually inspect their vehicles for emission compliance, the military, with its vast inventory of vehicles, is exempt from such inspection programs.⁵⁹ This exemption greatly impacts states that have military bases because those states still need to meet the emission requirements of the Clean Air Act. Therefore, those states and their citizens must offset their emissions in order to comply with the Clean Air Act. While few would argue the need for some temporary or extraordinary exemptions invoked by the President of the United States, the military, since 2011, has pushed for the normalization and expansion of these exemptions.⁶⁰ As evidence of this push, Pentagon officials, citing concerns about military training and readiness, won a legislative victory with the Bob Stump National Defense Authorization Act for Fiscal Year 2003. The Act brought more flexibility in dealing with migratory birds and marine mammals under the Endangered Species Act and implemented easier standards to meet for air quality and the cleanup of toxic waste sites.⁶¹

These exemptions have recently become broader and easier to use. In November of 2001, President George W. Bush issued Executive Order 13,235, which authorized the military to undertake any construction activities deemed necessary by the Secretary of Defense for national security.⁶² This order expanded authority beyond the Office of the President and widens the likelihood of its use.⁶³ Therefore, the order provided an easy path for the military to avoid the requirements of any environmental law and regulation in pursuit of national defense. In recent history, bills were put forward in Congress to exempt the military from environmental legislation

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*; UNION OF CONCERNED SCIENTISTS, *Vehicles, Air Pollution, and Human Health* (July 18, 2014), <https://www.ucsusa.org/resources/vehicles-air-pollution-human-health> [<https://perma.cc/DYX7-XCUF>].

⁶⁰ Meltz, *supra* note 6.

⁶¹ See generally Erin Truban, *Military Exemptions from Environmental Regulations: Unwarranted Special Treatment or Necessary Relief*, 15 VILL. ENV'T. L. J. 139 (2004).

⁶² Exec. Order No. 13,235, *supra* note 39.

⁶³ *Id.*

but were largely rejected by the Congress.⁶⁴ Many targets of these proposed bills are exempted from provisions of the Endangered Species Act and the Clean Air Act and are provided some relief from the burden of hazardous waste clean-ups.⁶⁵

3. Efficiency vs. Reformation

There is collective agreement that the September 11th attacks were a clear indicator of the need to increase military training and national defense. The underlying question, however, is whether the military should be exempt from environmental regulations in order to ensure its readiness, or whether the institution can meet its national security obligations while maintaining its status as a steward of the environment. Given the military's size and expenditures, its huge fleet of gasoline and diesel burning vehicles, its generation of hazardous waste, and its important role as a global citizen, policymakers should remain wary of not easily allowing the erosion of some existing exemptions and practices related to environmental laws and protection. It would seem rational that, in peacetime, the United States Department of Defense (DOD) should expand its contribution to environmental protection; however, this has not been the case. Armed with new regulatory exemptions, the Secretary of Defense can exempt the military from most major environmental legislation under which the rest of United States operates by implementing two-year non-renewable exemptions of which the public has no right to challenge.⁶⁶ This process represents a significant expansion of the ability for the military to pollute as it sees fit. Additionally, there is an endemic view within the military that it should be exempt from environmental regulations to increase its agility and preparedness, even during peacetime.⁶⁷ There are no studies or empirically based evidence, however, to support the assertion that complying with environmental regulation has had any deleterious impact on military preparedness.⁶⁸

One can easily see a pattern of governance which runs counter to many democratic principles and priorities that put these laws into place. The ability to circumvent duly enacted environmental legislation, like the Endangered Species Act, could permanently devastate the existence of

⁶⁴ See generally Hope M. Babcock, *National Security and Environmental Laws: A Clear and Present Danger?*, 25 VA. ENV'T. L. J. 106 (2007).

⁶⁵ *Id.*

⁶⁶ Babcock, *supra* note 64, at 116.

⁶⁷ *Id.* at 117.

⁶⁸ *Id.* at 154.

some marine mammals.⁶⁹ To not require the military to comply with provisions of the Comprehensive Environmental Response, Compensation and Liability Act could leave military personnel and their dependent families at risk from contaminated drinking water in and around bases.⁷⁰ If the military was also exempt from major legislation like the Resource Conservation Recovery Act, spent uranium shells used in training could be left for future generations to mitigate.⁷¹ Furthermore, the clean air standards created by the Clean Air Act become more burdensome for states to meet because military bases are allowed to pollute without repercussion.⁷² In recent years, when remedies have been sought in the courts, the courts have sided with the military and its perceived training needs.⁷³

Some environmental legislation like the Endangered Species Act (ESA) creates larger challenges for the military to overcome. Exemption from this law, which protects not only listed species but also their respective habitats, requires a multi-step process. First, the military must, prior to taking any action, consult with both the Secretary of Commerce and the Secretary of the Interior to receive an objective determination on whether the proposed action is impactful.⁷⁴ If the action is deemed impactful, but the military wants to move forward with its proposed action, it is required to notify Congress and limit the time and scope of the proposed action. Finally, the proposed course of action is subject to judicial review.⁷⁵ This process creates a form of checks and balances to ensure that one branch of government, in this case the executive branch, is not granted enough power to overturn or nullify certain duly enacted legislation without significant scrutiny and procedural safeguards.⁷⁶ For example, if these exemptions were not subject to judicial review, then a president who favors national security over environmental protection would be able to grant exemptions without regard for either environmental protection or the legislative branch. Furthermore, it would likely accelerate the implementation of exemptions, with much less scrutiny, that potentially lead to irreparable harm to the county's natural resources.

⁶⁹ *Id.* at 130.

⁷⁰ *Id.* at 131.

⁷¹ *Id.*

⁷² *Id.* at 136.

⁷³ *Id.* at 148.

⁷⁴ Meltz, *supra* note 6.

⁷⁵ Babcock, *supra* note 64, at 110.

⁷⁶ *Id.* at 110-11.

E. *Exemptions: A real world example*

The case of *Winter v. NRDC* demonstrates the tension between military preparedness and existing environmental law. President Bush submitted an exemption for the U.S. Navy, stating that it is critical to national security that the Navy conduct this training. This decision was, of course, subject to judicial review.⁷⁷ The issue was that the Navy's use of mid-frequency active sonar (MFA) to detect near-silent diesel-electric submarines was causing harm to marine mammals.⁷⁸ The Navy testified that antisubmarine warfare training utilizing MFA sonar is critical to military preparedness. The plaintiffs in the case argued that MFA sonar is so loud to marine life that it causes beaching, navigational problems, and changes to longstanding migration patterns, which, in turn, threatens the species survivability. Additionally, the plaintiffs accused the Navy of not considering these threats to marine life in its decision to use the technology.⁷⁹ The plaintiffs sought remedies under the National Environmental Policy Act of 1969 (NEPA), the Coastal Zone Management Act of 1972 (CZMA), and the Endangered Species Act of 1973 (ESA).⁸⁰ The plaintiffs' claims cited a number of anecdotal and empirical studies worldwide which linked sonar use to the injury and death of a number of marine species.⁸¹

The plaintiffs also presented the Navy's own internal analysis which predicted that there could be as many as 170,000 occurrences of harm to marine mammals during the proposed military exercises using the sonar off the coast of Southern California.⁸² These sonars emitted between 215 and 235 decibels of sound which projects up to 300 miles at a decibel level of 140.⁸³ Consider that a loud rock concert generates around 120 decibels of sound⁸⁴ and that hearing damage occurs at sound levels of eighty-five decibels according to Occupational Safety and Health Administration (OSHA) standards.⁸⁵ As a result, these training exercises could severely alter marine mammal migration patterns, lead to the breaching of marine

⁷⁷ *Winter v. NRDC: Navy Sonar and Whales*, THE U.S. DEP'T. OF JUST., <https://www.justice.gov/enrd/winter-v-nrdc> [<https://perma.cc/YB3V-AHJD>] (May 15, 2015).

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Does Military Sonar Kill Marine Wildlife?*, SCI. AM. (June 10, 2009), <https://www.scientificamerican.com/article/does-military-sonar-kill/> [<https://perma.cc/BX6N-UTEW>].

⁸⁴ Healthwise Staff, *Harmful Noise Levels*, UNIVERSITY OF MICHIGAN (July 28, 2019),

<https://www.uofmhealth.org/health-library/tf4173> [<https://perma.cc/JU3Q-9475>];

Arianna Di Stadio et al., *Hearing Loss, Tinnitus, Hyperacusis, and Diplacusis in Professional Musicians: A Systemic Review*, 15 INT'L J. OF ENV'T. RSCH. AND PUB. HEALTH 2120, 2121 (2018).

⁸⁵ 29 C.F.R. § 1910.95.

mammals, and, generally, the disorientation and death of these animals.⁸⁶ The lower courts initially ruled in favor of the plaintiffs, but, through an exhaustive appeals process, the case ended up in the Supreme Court.⁸⁷ The Supreme Court agreed with the Navy's argument that these training exercises were imperative to prepare the Navy to meet hostile threats as it deploys its ships and crews around the world.⁸⁸ In the majority opinion, written by Chief Justice Roberts, the Supreme Court overturned the decision of the lower court, stating that the lower court had both misapplied the law and not adequately weighed the importance of national security when temporarily enjoining the proposed action.⁸⁹ Justices Ginsburg and Souter dissented in the case.

This case demonstrated how a military exemption operates highlighted the necessity of national security. The president clearly demonstrated his authority to exempt the military from environmental legislation, as it pertained to "the paramount interest of the United States."⁹⁰ In this particular case, the exemption was upheld by the Supreme Court.⁹¹ In part, the court ruled that there was no other training method available to detect near-silent diesel-electric submarines.⁹² As such, the court deemed national security temporarily more important than the protection of marine mammals through enforcement of the ESA.

III. RESULTS/CONCLUSIONS

At the outset, this article set forth three questions. Now, after careful examination, the article provides the following conclusions.

(1) Is the military impactful through its operations on the environment?

The U.S. military continues to have a major role in global polluting, with a budget that would make it the twenty-fourth largest nation in the world in terms of GDP.⁹³ Furthermore, the military's need to operate on land, sea, and air, combined with a total of 1.29 million enlisted personnel,⁹⁴ has demonstrated that the military will likely continue to be a

⁸⁶ *Does Military Sonar Kill Marine Wildlife?*, *supra* note 83.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ Meltz, *supra* note 6.

⁹¹ *Winter v. NRDC: Navy Sonar and Whales*, *supra* note 77.

⁹² *Id.*

⁹³ *World military spending*, *supra* note 6.

⁹⁴ George M. Reynolds and Amanda Shendruk, *Demographics of the U.S. Military*, COUNCIL ON FOREIGN RELS. (Apr. 24, 2018), www.cfr.org/article/demographics-us-military [https://perma.cc/5JUT-V8PU].

major global polluter in pursuit of national security interests and preparedness. This result is evidenced by numerous studies on the causes of global warming and an ever growing list of hazardous waste disposal sites both on land in support of military operations.⁹⁵ The military will continue its pollution-generating activities despite existing environmental laws because of the exemptions the government has created for the military.⁹⁶ With oceans, watersheds, and airsheds moving pollution around the world without respect to geo-political boundaries, it remains a glaring hole in our efforts against global pollution and should be recognized and understood.

(2) Is military preparedness harmed or helped by environmental regulation?

The September 11th terrorist attacks increased public awareness of national security issues and exposed some of our vulnerabilities.⁹⁷ Coupled with this awareness, however, has been an increase in both the enactment of environmental legislation informed by science and the use of the precautionary principle in policymaking.⁹⁸ There is a growing awareness concerning the finiteness of natural resources, our ability to damage these resources, and their importance in maintaining a safe and healthy environment. Real questions and considerations remain, however, about the benefit of military preparedness juxtaposed against the long-term consequences of environmental damage.⁹⁹ While few would challenge some of these exemptions under the auspices of war, questions remain about the necessity of some military activities in times of relative peace.

The DOD published a report that set forth and reviewed individual instances wherein compliance with environmental regulations impaired military training exercises at some bases.¹⁰⁰ However, the evidence is anecdotal, and no system exists to reliably quantify the impact of these impairments on military readiness.¹⁰¹ More effort should be invested by the federal government in assessing the impact of full environmental compliance on military preparedness.¹⁰² The Government Accountability Office (GAO) found that DOD's reports did not provide details as to which envi-

⁹⁵ Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

⁹⁶ Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

⁹⁷ Savage, *supra* note 47; accord Hynes, *supra* note 45.

⁹⁸ Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

⁹⁹ Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

¹⁰⁰ Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

¹⁰¹ Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

¹⁰² Hamilton, *supra* note 43; accord Savage, *supra* note 47; accord Hynes, *supra* note 45.

ronmental rules restrict pertinent training activities, or whether other factors, such as urban encroachment, contribute to the impairment.¹⁰³ In short, the DOD continues to be unable to demonstrate the impact that compliance with environmental regulations has on military readiness.¹⁰⁴ The DOD and the Environmental Protection Agency should conduct research to determine if certain environmental regulations impede military preparedness and, if so, to what extent. Such an undertaking undoubtedly improve policymaking and governance. It may very well be possible to establish rigorous environmental protections while ensuring military preparedness. Unfortunately, we will not know the answer to this question without further studies and efforts regarding this apparent conflict.

In the past decade there has been an increase in tension between the requirements of environmental legislation and the training requirements of the U.S. military.¹⁰⁵ The DOD has been consistently requesting Congress for further and more expansive exemptions from environmental regulations.¹⁰⁶ However, without empirical data to bolster its argument that environmental rules have compromised military training and readiness, Congress has been reluctant to increase the scope of these exemptions.¹⁰⁷ While few would challenge the value of a strong national defense, it should be a primary goal of governments to provide a strong national defense without compromising the nation's vital natural resources or jeopardizing the nation's public health.¹⁰⁸ It should be noted and understood that current environmental law includes exemptions that the president can implement when needed to better the military's ability to respond to national security threats.¹⁰⁹

Given the long and documented history of making rational decisions with regard to environmental protection while still causing significant environmental damage, it seems clear that a change in course in environmental policymaking is required. Policymakers and the U.S. military should choose a course that uses the precautionary principle. The use of this principle as a cornerstone in decision-making should grow incrementally as policymakers continue to link long-term environmental sustainability with national defense, sovereignty, and global survivability. As policymakers continue to better understand these links, they will hopefully

¹⁰³ Hamilton, *supra* note 43; *accord* Savage, *supra* note 47; *accord* Hynes, *supra* note 45.

¹⁰⁴ RS22149, *supra* note 27.

¹⁰⁵ RS22149, *supra* note 27.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ Babcock, *supra* note 64, at 110; *accord* Exec. Order No. 13,235, *supra* note 39.

disengage from practices and policies that have proved inordinately harmful to the environment. At a minimum, the use of the precautionary principle should continue in times of peace. Short term perceptions of military preparedness, which often lack support from empirical data in times of peace, are a questionable rationale for long-lasting global damage to natural resources essential for life on Earth. Maintaining clean air and clean water remains a matter of great global concern. Natural resources are no longer seen as infinite or immune from lasting damage as a result of anthropogenic causes, and many clearly view natural resources as essential to human health and well-being.¹¹⁰ If rational thought leads policymakers to assess that military preparedness in peacetime trumps the importance of environmental protections, then more empirical evidence is needed to demonstrate that such a policy is misguided. Finally, research efforts should focus on identifying effective alternatives to existing military training patterns; employing the best available science; assessing the impact of new technologies; and, making good use of military, environmental and policy expertise in pursuit of the common good.

(3) Is there a path to for both environmental policy makers and the military to pursue policies and international cooperation that minimize impacts to the environment without compromising military preparedness?

There are two major schools of thought relating to the way nations interact with each other as global citizens. Realism and Liberalism both offer philosophical approaches to understanding international behaviors dictated by “anarchy.”¹¹¹ Anarchy is defined as the reality where no world police or government is able to prevent any state from doing as it pleases.¹¹² This situation creates a real world tragedy of the commons whereby there are no formal restraints preventing any one state from pursuing its own self-interests at the expense of the long-term well-being of the global environment.¹¹³ Both Realism and Liberalism, as it pertains to international relations, envision national security interests overriding environmental interests.¹¹⁴ But, linking an understanding of environmental interests with interests of national security should provide nations with a reason to collectively address the problem of global pollution.

¹¹⁰ *Climate Change Threatens National Security Says Pentagon*, U.N. CLIMATE CHANGE (Oct. 14, 2014), <https://unfccc.int/news/climate-change-threatens-national-security-says-pentagon> [<https://perma.cc/B8HM-Q4MD>].

¹¹¹ See generally Robert Powell, *Anarchy in International Relations Theory: The Neorealist-Neoliberal Debate*, 48 INT’L ORG. 313 (1994) (discussing competing theories of international relations).

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

A brief comparison of both schools of thought reveal that there is much agreement when it comes to addressing global pollution.¹¹⁵ Both deal with the problems associated with anarchy.¹¹⁶ Realism posits that nations rely on either their own power or their alliances with other nations, while Liberalism hypothesizes that nations can join with other nations, either through alliances or international organizations, to further common national security interests.¹¹⁷ While both schools of thought offer different approaches to managing the global pollution crisis, they agree that the world's nations are capable of mitigating the problem in real and positive ways.¹¹⁸

A common thread between each school of thought is increased national security with an incentive to seek international cooperation.¹¹⁹ Placing this commonality in the context of global pollution, global warming, and economic security, issues of environmental protections should create a great laboratory for examining international relations centered on environmental protection and national security.¹²⁰

Real and profound national security interests exist with regard to climate change and international pollution.¹²¹ Both watersheds and airsheds do not respect geopolitical boundaries, and they can only be addressed with international cooperation.¹²² The Pentagon now recognizes global warming and climate change as real threats to national security. Specifically, climate change has the power to disrupt military preparedness by creating more zones of civil unrest, displacement, war, and famine around the world.¹²³ As scientific understanding continues to inform geopolitical circumstances, reasons for international cooperation regarding the environment should continue to grow.

There are some indications that the U.S. DOD has begun to recognize global warming as a threat to U.S. interests at home and abroad. At his recent congressional confirmation hearing for Secretary of the Navy, Richard Spencer, as the nominee, noted the challenges that climate change and rising sea levels pose to military infrastructure over the next fifty

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ See generally DAVID A. BALDWIN, NEOREALISM AND NEOLIBERALISM: THE CONTEMPORARY DEBATE (Colo. Univ. Press 1993).

¹¹⁹ *Id.*

¹²⁰ Thompson, *supra* note 3.

¹²¹ *Id.*

¹²² McGinnis, *supra* note 2.

¹²³ Thompson, *supra* note 3.

years.¹²⁴ Furthermore, in 2014, Chuck Hagel, then-U.S. Defense Secretary, characterized global warming as a threat to national security, citing the risks posed to infrastructure and displaced populations, which give rise to global unrest and political instability.¹²⁵ Leadership at every level of government, from the president, congressional leaders, and the heads of the EPA, the Department of the Interior, the Department of Commerce, and the DOD will all be required to address the dual challenges of national security and environment protection in the coming century. This response needs to be fueled by sound science, smart and integrated policies, and an increasingly aware and engaged electorate. The military is beginning to seriously consider the management of the environment as a sound defense policy and continues to change and adapt its understanding of the implications that global warming will have on its operations.¹²⁶ This development should encourage all concerned global citizens. Growing awareness of the long-term consequences of ignoring environmental degradation for short-term security gain, will likely drive future policy considerations and cause policymakers to devote greater thought regarding the nexus between military readiness, international cooperation, and environmental pollution. One can expect a brighter future as the line between national self-interest and global survivability continues to blur and meld together.

IV. RECOMMENDATIONS

1. International cooperation and consideration of environmental protections among militaries should be studied as both a partial solution for global pollution and a means towards reducing the world's carbon footprint.

The combined impact of the worlds' largest armies, through their need for training and use of carbon-based fuels, is tremendous. Through both global cooperation and a commitment to reducing its exempt activities to lessen its carbon footprint during peacetime, the U.S. military could produce tangible improvements in environmental quality.

2. International military treaties should require the use of the precautionary principle with regard to decisions that affect the environment in the same way these agreements attempt to limit chemical and biological warfare.

¹²⁴ *Id.*

¹²⁵ *Climate Change Threatens National Security Says Pentagon*, *supra* note 110; accord CNA MILITARY ADVISORY BOARD, NATIONAL SECURITY AND THE ACCELERATING RISKS OF CLIMATE CHANGE 13 (CNA Corp. 2014), https://www.cna.org/cna_files/pdf/MAB_5-8-14.pdf [<https://perma.cc/MX2J-PZAF>].

¹²⁶ *Climate Change Threatens National Security Says Pentagon*, *supra* note 110; *see generally* CNA MILITARY ADVISORY BOARD, *supra* note 125.

The acute impact and damage inflicted through biological and chemical warfare is so heinous that it is defined and outlawed by international treaty. If the global community were to similarly realize and acknowledge the long-term and cumulative impacts of environmental degradation, it would usher in an era of environmental protection rooted in the mutual self-interests of survivability and sovereignty.

3. The U.S. military and militaries around the world should use new technologies and incorporate environmentally friendly alternatives into military training exercises whenever feasible.

Industries throughout the world continue to employ new technologies to create significant gains in every sector of the economy. These efforts range from reimagining the ways in which we manufacture products, to reducing the amount of emissions during use, to the post-consumer treatment of waste. The military should adopt an aggressive stance in pursuing all new technologies and inculcating them with military training needs.

4. Military policymakers and environmental policymakers should work together and recognize the links between sustainability, long-term survivability, global unrest, terrorism, and health.

This effort should be on-going and educational, and it should seek to weave the precautionary principle of “do no lasting harm” into military policymaking. Such a strategy requires the leaders to look at and think about longer planning horizons while making better use of science in the crafting of long-term sustainable policies.

5. More research should be undertaken to empirically understand the impacts of global militaries on our environment in both wartime and peacetime.

This recommendation is partially linked to the aforementioned recommendation. Throughout much of the discussion in this article, military preparedness is juxtaposed against the need for rigorous environmental protections. There seems to be an assumption that these two ideas are not mutually exclusive—that to do one requires a contraction of the other. Additionally, there seems to be no empirical data to support the proposition that the enforcement of environmental regulations either poses a threat to or negatively impacts military preparedness. It may well be that simply reimagining about how these goals interact with each other can achieve greater military preparedness and more comprehensive environmental protections. More empirical research into this question should include a form of cost-benefit analysis.

V. CONCLUSION

The recommendations above represent perhaps an obvious and reactionary response to some of the findings in the article. It should be noted that this article is not intended to be a complete expression of the problem of, nor the solutions for global military polluting. Instead, this article is intended to heighten consideration of the problem and to prompt further research of this issue for the purpose of aiding policymakers in the future. The most important findings of this article are recognizing the size and scope of military pollution and understanding some of the philosophical underpinnings of military preparedness that have led policymakers, legislators, and elected leaders to exempt the military from many regulatory requirements designed protect the environment for the benefit of all of society. This article should also serve to elevate the discussion of global polluting and equate it with military preparedness in importance in order to create a more balanced approach to policymaking, at a minimum, during times of relative international peace.