U.S. Military Responsibility for Environmental Clean Up in Contingency Environments

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Disclaimer

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Abstract

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Environmental destruction is an inevitable by-product of warfare. However, the new paradigm of U.S. military contingency operations requires a strategic vision beyond merely engaging the enemy. American military commanders in the 21st century must also seek to win the “hearts and minds” of the local population in order to solidify gains and ensure lasting victory. Unfortunately, many commanders have not adapted to this new way of thinking. As a result, commanders fail to consider the long-term environmental damage inflicted by their soldiers during combat operations, damage which must be borne by the civilian population. Such damage includes hidden unexploded ordnance (UXO) hazards, depleted uranium (DU), and other hazardous waste generated by the day-to-day operations of U.S. military personnel deployed to contingency environments. Though commanders claim exigent circumstances prohibit them from implementing environmental controls, the long-term nature of current U.S. occupation (up to 13 years) undermines these excuses. In fact, the U.S. military has a robust collection of policies, regulation, and personnel which could be modified to limit the amount of damage caused by military deployments. This paper examines the existing hazards in contingency environments and the collection of U.S. military regulations which apply to “enduring” bases and those in the Continental United States (CONUS). Additionally, it surveys the international laws regarding environmental destruction currently applicable to U.S. deployments, as well as what methods of recourse citizens of Iraq and Afghanistan have to address environmental damage caused by the U.S. military. Finally, it proposes solutions to deal with gaps in U.S. and international law and policy in order to prevent and mediate environmental damage caused by U.S. contingency operations and provide methods of recourse by citizens of countries hosting military deployments.
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Introduction

Seventy years after the last Allied bomb fell on Germany, accidental detonations of unexploded World War I and II ordnance remain so common German construction companies must consult sixty year-old Allied bombing maps and have explosive ordnance disposal experts on standby before building in major metropolitan areas.\(^1\) In August 2012 explosives experts conducted a controlled detonation of the remnants of a 550 pound World War II era bomb discovered under a bar in Munich, Germany.\(^2\) The detonation ignited several buildings and shattered windows across the city.\(^3\) More recently, a 4,000 pound British bomb dropped on the city of Euskirchen, Germany in the 1940’s claimed the life of a bulldozer driver and injured thirteen others.\(^4\)

Unexploded ordnance (UXO) is just one of many environmental hazards common to modern warfare. Complicating efforts to address these hazards is the unsettled nature of modern victory. There are no longer defined phases of conflict such as declaration, warfare, and post-conflict. A new dynamic has emerged for what are now known as “contingency operations,” wherein U.S. armed forces “are or may become involved in military actions, operations, or hostilities against an enemy of the United States.” \(^5\) Rather than declared hostilities and signing

\(^{1}\) Id.
\(^{4}\) Id.
\(^{5}\) JOINT CHIEFS OF STAFF, JOINT PUB 1-02, DOD DICTIONARY OF MILITARY AND ASSOCIATED TERMS, Jan. 31, 2011, defines a contingency operation as “a military operation that is either designated by the Secretary of Defense as a contingency operation or becomes a contingency operation as a matter of law (10 United States code (USC) 101(a)(13)). It is a military operation that: a. is designated by the Secretary of Defense as an operation in which members of the Armed Forces are or may become involved in military actions, operations, or hostilities against an enemy of the United States or against an opposing force; or b. is created by definition of law. Under 10 USC 101 (a)(13)(B), a contingency operation exists if a military operation results in the (1) callup to (or retention on) active duty of members of the uniformed Services under certain enumerated statutes (10 USC Sections 688, 12301(a), 12302, 12304, 12305, 12406, or 331-335); and (2) the callup to (or retention on) active duty of members of the
ceremonies, today’s conflicts are marked by fluid phases which often overlap: pre-conflict, engagement/deterrence, seizing the initiative, decisive operations, and post-conflict. This overlap often results in situations where the U.S. military may simultaneously be destroying the environment through combat operations while at the same time improving it with civil works projects. In such a chaotic and potentially deadly setting, preserving the environment and remediating environmental damage from combat is often overlooked. Nonetheless, with the recent departure of U.S. military personnel from Iraq in 2011 and the anticipated drawdown from Afghanistan at the end of 2014, the time has come for the U.S. military to consider what, if any, actions it will take to mitigate the environmental legacy of over a decade of armed conflict, even as it turns authority over to the governments of Iraq and Afghanistan. As this paper will demonstrate, American military environmental policies and procedures in combat zones are either outdated, insufficient, or ignored outright; though environmental damage and destruction may be an inevitable result of the exigent circumstances of war, it is indefensible not to mitigate and remediate such damage once hostilities are over, and it is deemed safe enough for our departure.

Large gaps remain in U.S. military environmental policy which threaten to undercut military efforts in Afghanistan and Iraq. A 2011 survey of U.S. Army environmental practices in contingency operations by the Army Environmental Policy Institute (AEPI) concluded:

A review of existing strategies and policies indicated, however, that none of the documents are directed at implementing or developing sustainability as a driving factor in contingency operations. Even recent attempts by the Department of the

uniformed Services under other (non-enumerated) statutes during war or national emergency declared by the President or Congress.”

6 JOINT CHIEFS OF STAFF, JOINT PUB 3-0, JOINT OPERATIONS, at IV-22 through IV-2 (Aug. 11, 2011).

Army to implement a Strategic Sustainability Campaign Plan have left sustainability conspicuously absent when it pertains to contingency operations.\(^8\)

In this instance the Army defines sustainability as “the ability to simultaneously meet current as well as future mission requirements worldwide, safeguard human health, improve quality of life, and enhance the natural environment.”\(^9\)

All four of the Nation’s armed services acknowledge protecting the environment and encouraging sustainability contribute to the military’s mission of “fight[ing] and win[ning] this Nation’s Wars.”\(^{10}\) Beyond enlightened self-interest, the military assumes certain legal and ethical responsibilities when it chooses to invade or deploy to a foreign country. These obligations are part of what Colin Powell infamously referred to as the “Pottery Barn Rule”: if you break [a country], you own it. This paper will argue the failure of the U.S. military to adequately plan for and execute post-conflict environmental clean-up violates the obligations it assumes when entering contingency operations and largely undermines its efforts to achieve lasting victory. The ad hoc, slapdash method used by the U.S. military to address environmental damage is largely the result of inadequate leadership and training and outdated policies which ignore the long-term nature of modern contingency and stabilization operations. The failure to acknowledge and attend to environmental damage in these areas not only endangers the civilian populations it seeks to support, but also threatens U.S. personnel and its standing as a world leader as well.

This paper will examine U.S. military obligations with respect to cleaning up and mitigating environmental damage and destruction wrought by U.S. military deployments to

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9 *Id.* at vi.

foreign countries, both during and after combat. Part I will give an overview of current environmental issues in conflict and post-conflict areas, and why they are vital to the U.S. national interest. Part II will describe the current state of U.S. and international law and environmental policy for conflict areas and methods of redress for citizens in those areas. Lastly, Part III will discuss shortfalls in current U.S. law and policy and propose changes to address these issues.

Environmental Hazards in Post-Conflict Areas

Armed conflict has long been known to cause devastating effects on the environment. Apocryphal stories of the Roman general Scipio salting the earth of Carthage following the Third Punic War in 146 BC are but one example of environmental destruction in warfare. In 2009, the United Nations (U.N.) declared, “[t]he toll of warfare today reaches beyond human suffering, displacement and damage to homes and infrastructure. Modern conflicts also cause extensive destruction and degradation to the environment.” In addition to physical destruction by bombs and other munitions, UXO and other hazardous substances released as a consequence of war can cause environmental damage “beyond the borders of conflict-affected countries [and] threaten the lives and livelihoods of people well after peace agreements are signed.”

Recent conflicts in Iraq, Afghanistan, Bosnia, and Kosovo magnified the issue of environmental damage in warfare, where long-term deployments in-theater became the norm as the U.S. sought to rebuild and stabilize these countries while simultaneously defeating enemy
combatants. Longer military deployments meant more interaction with local populations as well as more opportunities to create hazards affecting those populations. A constant refrain of U.S. commanders during contingency operations is the need to win the “hearts and minds” of civilians in conflict areas, populations that are often both poor and dependent on the land for their livelihood. As a result, stewardship of the environment by the U.S. military, particularly in regards to UXO, depleted uranium, and handling and disposal of hazardous substances, largely impacts how the local population views U.S. military operations. The following paragraphs discuss the size and scope of these issues, and current U.S. efforts to address them.

**UXO as an Environmental Hazard**

During World War II, massive Allied aerial bombing dropped more than 1.9 million tons of bombs on German soil, killing an estimated 500,000 people. Most experts agree between five and fifteen percent of these bombs did not explode, with an estimated 95,000 and 285,000 tons of munitions still dotting the German countryside. The grave and long-lasting environmental consequences of UXO are dire in Germany where WWII ordnance continues to maim and kill.

Unlike First World Germany, nearly forty percent of the Afghan population lives in poverty. Beginning with the Soviet occupation in 1979, thousands of tons of ordnance have

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15 David Mosher et al., Green Warriors: Army Environmental Considerations for Contingency Operations from Planning to Post-Conflict 10 (2008).
19 *Id.*
fallen on Afghanistan. Even before the U.S. invasion in 2001, an estimated 8,000,000 anti-personnel mines and 2,000,000 anti-tank mines littered the Afghan countryside, a legacy of previous wars with the Soviet Union and Taliban.\textsuperscript{21} According to the U.N., “mines and explosive remnants of war (ERW) affect a significant number of Afghan communities: 4,681 minefields and 192 battlefield areas threaten the lives and livelihoods of 1,655 Afghan communities in the country. Over 670,000 Afghans (3% of the population) live within 500 meters of contaminated areas.”\textsuperscript{22} Mine removal operations hinder agricultural development, “a significant obstacle in a country where 70% of the labor force earns an income through farming or animal husbandry.”\textsuperscript{23} The Centers for Disease Control observes “mines [in Afghanistan] are often laid around objects of economic importance, resulting in injuries among persons who are traveling or performing activities of economic necessity.”\textsuperscript{24} Because of its tendency to be found above ground, “[UXO] poses a particular threat to children and adolescents who like to play or tamper with strange objects” resembling toys or even aid packages.\textsuperscript{25} As a result, mines/ERW injure or kill an average of 31 civilians a month in Afghanistan.\textsuperscript{26}

The U.S. contribution to this toll accelerated in recent years due to the shutdown of U.S. base camps and forward operating bases (FOBs) with firing ranges peppered with deadly explosives.\textsuperscript{27} Over the past three years the U.S. withdrew from a majority of its 880 bases in

\begin{footnotesize}
\begin{enumerate}
\item \textit{Id.}
\item \textit{Id.}
\item \textit{Injuries Associated with Landmines and UXO --- Afghanistan, 1997--2002,} CDC.GOV, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5236a2.htm (last visited May 26, 2014)
\item \textit{Id.}
\item \textit{Mine Action Programme in Afghanistan, supra note 21.}
\end{enumerate}
\end{footnotesize}
Afghanistan; however as of April 2014 less than three percent of formerly U.S. occupied land has been cleared of munitions. Though U.S. officials say they intend to clean up discarded munitions, none of the estimated $250 million cost has been approved for the effort, which is expected to take two to five years.

This oversight has proven especially deadly for Afghan children, who often search former ranges for pieces of scrap metal they can sell for ten cents a pound. In some instances the children attempt to remove aluminum from ordnance fuzes, commonly found in mortar shells by striking live rounds with a large hammer. Another common practice is the removal of copper driving bands from artillery and tank rounds by laying the rounds in a fire in order to expand the copper band with heat, making it easier to remove. If the round does not explode, young scavengers will use a hammer to strike the bands and remove them. The consequences of this scavenging are often tragic, including catastrophic amputation or even death. Abdul Mateen, the brother of a twelve year old Afghan boy maimed by explosives, poignantly asks, “What can he do without legs? His future is hopeless.”

Abdul Mateen’s brother is not an isolated case: according to the U.N. in 2011, out of a total of 561 casualties caused by mines and UXO, 431 victims were under eighteen (seventy-six percent). Between 2012 and April 2014, eighty four casualties were recorded in and around U.S. or North Atlantic Treaty Organization (NATO) firing ranges or bases. The Washington Post observes, “[o]f the casualties recorded by the United Nations (since 2012), 88 percent were

28 Id.
29 Id.
31 Id
32 Id.
33 Sieff supra note 27.
34 UNITED NATIONS ASSISTANCE MISSION IN AFGHANISTAN, AFGHANISTAN ANNUAL REPORT ON THE PROTECTION OF CIVILIANS IN ARMED CONFLICT 29 (2013).
35 Sieff, supra note 27.
children.” U.S. officials say they will deal with the UXO on abandoned American FOBs eventually. Nonetheless, the same officials categorically deny any legal or moral responsibility to clear remnants of UXO from the 240 high explosives ranges used in Afghanistan, stating there is no legal obligation to do so because Afghanistan is not part of the U.N. Convention on Certain Conventional Weapons (UNCCW). 

This stance is surprising when one considers the differences between how unused munitions are handled in the U.S. versus how they are handled in Afghanistan. In the U.S, unused munitions are considered hazardous waste when “abandoned (for example, buried, placed in landfills, or dumped at sea); detonated (except as a consequence of intended use); burned, incinerated, or treated before disposal; removed from storage for treatment/disposal; deteriorated or damaged beyond repair; recycled or reused; or declared as waste by an authorized military official” under the Military Munitions Rule of 1997. This rule amended the Resource Conservation and Recovery Act of 1997 (RCRA) to require specific procedures for storage, transport, and disposal of unused munitions as hazardous waste when they fall into the above categories. Munitions are not considered hazardous waste when “used for their intended purpose, such as training;” therefore, what may be considered hazardous waste one country can simply be abandoned in place in another.

The issue of environmental contamination from UXO on U.S. ranges continues to worsen as U.S. military personnel leave Afghanistan. As troop numbers decline there are fewer and

36 *Id.*
37 *Id.*
39 *Id*
40 *Id.*
41 *Id.*
fewer uniformed personnel or contractors to survey contaminated sites and to provide security for nongovernmental organizations (NGOs) and contractors participating in demining activities. Though a limited number of Afghan National Army (ANA) personnel have been trained on explosive ordnance disposal techniques, as one of the poorest countries in the world Afghanistan lacks the manpower, equipment, and financial resources to deal with the problem.

An additional environmental hazard posed by U.S. munitions comes from the use of cluster bombs, both in Iraq and Afghanistan. According to the Federation of American Scientists, cluster bomb units (CBU)s “consist of a great number of small, but extraordinarily powerful bombs [bomblets] contained within a large canister or dispenser.” These bomblets are contained in canisters “designed to break apart in flight and distribute the submunitions or bomblets over a wide area.” CBU's are used by the U.S. as “area weapons,” primarily targeting “soft” targets such as personnel rather than “hard targets” such as tanks, being “very effective against troops in the open.” During Operation Desert Storm, over 61,000 cluster munitions were dropped on Iraqi conventional forces as well as designated military targets; this practice was continued in the Balkans in 1999 and in Afghanistan and Iraq beginning in 2002.

42 Sieff, supra note 27.
47 See Lacey supra note 45 at 28.
With an estimated initial failure rate of five to seven percent,\textsuperscript{49} wide dispersal area, target proximity to civilian population centers,\textsuperscript{50} and high density of contamination and sub-surface contamination,\textsuperscript{51} cluster munitions have proven to be a particularly insidious environmental hazard, especially to children. Unlike self-destructing landmines, cluster bombs failing to go off on delivery or impact may blow up at any time, “even years after their initial use.”\textsuperscript{52} As time passes cluster bombs initially failing to detonate on impact grow even more dangerous as the fuze mechanism, which arms the munition, deteriorates.\textsuperscript{53} Furthermore, due to their design, color, and size (approximately that of a soda can, with a parachute attached), the bomblets resemble toys, which local children pick up, often resulting in death or amputation.\textsuperscript{54} Of the 331 known areas where aerial ordnance was dropped on the Taliban, U.S. officials state they have no obligation or intention to clear those sites of unexploded cluster munitions bomblets.\textsuperscript{55}

Beyond the immediate impact of demise and dismemberment, UXO can render once habitable or arable land uninhabitable for decades:

Assuming a fairly standard strike of five [cluster bomb dispensers with 147 bomblets each], the resulting thirty-five unexploded bomblets may have a post-conflict impact ranging from insignificant to devastating. Thirty-five bomblets spread across the agricultural and grazing land of a subsistence community could effectively destroy its future and force it to abandon its homes and land. It has no way of knowing that there are not “only” 35 bomblets present nor would it have any reasonable expectation of the land being cleared within a feasible timescale.\textsuperscript{56}

\textsuperscript{51} MOYES supra note 30 at 10.
\textsuperscript{52} Thomas McDonnell, \textit{Cluster Bombs Over Kosovo: A Violation of International Law?}, 44 ARIZ. L REV. 80 (2002).
\textsuperscript{54} Laurenzo supra note 49 at 42.
\textsuperscript{55} Sieff supra note 27.
\textsuperscript{56} MCGRATH supra note 53.
The presence or potential presence of UXO also prevents people from “safely using land for agriculture and infrastructure, for example collecting wood, growing cash crops, and rebuilding houses…[T]he economy of the family and the wider community is affected.”[^57] Though land denial from UXO is “not always absolute,” clearly the economic impact on subsistence communities like those of Iraq and Afghanistan is profound, especially for families lacking non-farming skills.[^58] In its most extreme form, contamination can be so pervasive many families choose to abandon land held for generations rather than expose themselves and their children to risk.[^59] Secondary impacts of UXO include disease outbreaks amongst refugees fleeing impacted areas, malnutrition, and starvation due to lack of cultivation of these lands, which now lie fallow.[^60]

**Release of Hazardous Substances**

UXO is not the only way war damages the environment. Deliberate targeting of industrial and “dual use” sites (meaning those used for both military and civilian purposes) and collateral damage to the surrounding areas devastates the environment over and over again. In 1999 NATO targeted the Pancevo Industrial Complex in Serbia with airstrikes, resulting in the release of “2,100 tons of Ethylene Dicholoride (EDC), eight tons of metallic mercury, 460 tons of vinyl chloride monomer, (VCM), 80,000 tons of oil and oil products and 250 tons of liquid ammonia.”[^61] Though spared from the worst environmental effects due to prevailing winds carrying toxins away from the city, the citizens of Pancevo still suffered from “respiratory

[^57]: See MOYES supra note 30 at 9.
[^58]: Id.
[^59]: Id.
difficulties, burning eyes, choking sensations, and upset stomachs." In one instance a doctor advised all of his pregnant patients to have abortions due to fears over birth defects resulting from chemical exposure. Damage to storage tanks in Novi Sad released 70,000 tons of crude oil into the soil and groundwater, while in Kragujevac 2,500 kilograms of polychlorinated biphenyls (PCBs) were released from damaged transformers into the Lepenica River. More recently, during Operation Desert Storm U.S. planes targeted industrial sites in Iraq including pharmaceutical and fertilizer plants due to their potential use in chemical weapons manufacturing and storage. Destruction of the Iraqi power grid by U.S. aerial bombing resulted in serious damage to already-inadequate water and sewage systems. While targeting of military sites is to be expected, U.N. observers found “many of these attacks achieved the military objective of denying the Iraqi military arms and other support; however these attacks were also associated with releases into the environment.”

In March 2003 Coalition bombers attacked thirty-eight Iraqi industrial sites previously used for arms production and storage near the Al Rasheed water treatment plant. Over 100 square kilometers of industrial targets suffered extensive damage. Desperate Iraqi nationals pillaged these sites following the bombing. Inspectors later found the areas “…derelict and comprehensively looted. Liquid and solid wastes including mounds of pure cyanide remain[ed]

63 Id.
64 U.S. DEP’T OF ARMY, REVIEW OF UNITED NATIONS ENVIRONMENT PROGRAMME AND OTHER POST-CONFLICT ENVIRONMENTAL ANALYSES 20 (2009) [hereinafter REVIEW OF UNEP]
65 UNITED NATIONS ENVIRONMENT PROGRAMME, UNEP IN IRAQ: POST-CONFLICT ASSESSMENT, CLEAN-UP, AND RECOVERY 21 (2007) [hereinafter UNEP IN IRAQ]
66 REVIEW OF UNEP supra note 64 at 37.
67 Id
68 UNEP IN IRAQ supra note 65 at 21.
69 UNITED NATIONS ENVIRONMENT PROGRAMME, UNEP ASSESSMENT OF ENVIRONMENTAL “HOT SPOTS” IN IRAQ 128 (2005) [hereinafter IRAQ HOT SPOTS].
70 Id at 48.
on the site and open to public access.”\textsuperscript{71} Especially concerning to the inspectors were residents exposed to “solvents, concentrated cyanides, acids, caustics, and chromium compounds” once used in metalworking.\textsuperscript{72}

Some observers believe the U.S failure to secure nuclear sites within Iraq following the aerial campaign resulted in lasting environmental damage.\textsuperscript{73} The al-Tuwaitha nuclear research complex, thirty miles south of Baghdad, was thought to be the headquarters of Iraq’s nuclear weapons program.\textsuperscript{74} International Atomic Energy Agency (IAEA) inspectors visiting the site after several months of U.S. occupation found “metal containers of 300-400 kilograms of natural and low-enriched uranium and uranium oxide either stolen or tipped out and the containers used for domestic purposes, such as milking cows, washing clothes, and storing drinking water and food.”\textsuperscript{75} Some radioactive material at the site dispersed through broken windows, while other material flowed into the Tigris as Iraqis used river water to clean out the drums.\textsuperscript{76}

In Afghanistan, the U.S. bombing campaign during the opening stages of Operation Enduring Freedom damaged Kabul’s main water supply networks, resulting in severe water shortages contributing to a cholera outbreak.\textsuperscript{77} One study of Coalition aerial bombing in Afghanistan found the attacks caused environmental damage which “increased the number of internally displaced persons by approximately 360,000 and prompted 200,000 others to flee to neighboring countries.”\textsuperscript{78} Some estimates found 2,500 people residing in U.N. refugee camps in

\textsuperscript{71} Id.
\textsuperscript{72} Id
\textsuperscript{74} Id.
\textsuperscript{75} Id.
\textsuperscript{76} Id.
\textsuperscript{78} Augst supra note 46 at 10669.
Afghanistan following these attacks “died from starvation, exposure, and associated illnesses during the four-month period.”

**Depleted Uranium**

Another way recent wars impacted the environment is the dispersal of depleted uranium. Depleted uranium (DU) is a byproduct of uranium enrichment and used in armor piercing munitions such as anti-tank rounds, tank armor, missiles, and projectiles. DU is approximately forty percent as radioactive as naturally occurring uranium. The advantage of DU munitions over standard ammunition is “high density, its ability to self-sharpen as it penetrates its target, and its propensity to ignite on impact at temperatures exceeding 600 degrees centigrade.” Combatants and civilians alike are exposed to DU when it pulverizes upon impact, either from a fired DU round or a damaged vehicle such as a “Humvee” with DU plating. Upon impact particles of DU are aerosolized, allowing them to be “inhaled, ingested, or absorbed through dermal contact or injury.” An additional hazard posed by DU is its deterioration to powdered uranium oxide, which when dispersed as a dust can be inhaled, absorbed, or ingested. During the 1991 Gulf War, “[o]ver 290 metric tons of depleted uranium projectiles were fired into

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80 North Atlantic Treaty Organization (NATO), Dr. Michael H. Repacholi, Background Material on Depleted Uranium (DU), Jan. 8, 2001, available at http://www.nato.int/du/docu/d010108e.htm

81 Id.

82 Health Physics Society Fact Sheet on Depleted Uranium at 1


84 Id.

85 IRAQ HOT SPOTS supra note 69 at 115.
Iraq.\textsuperscript{86} Operations Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) added 1,700 tons of DU to the environment in the past decade.\textsuperscript{87}

The amount of actual physical harm caused by DU rounds and other scrap waste is the subject of much controversy. Early studies of the material by the United Kingdom’s Ministry of Defense (MOD) found exposure to DU increased the risk of lung, lymph, and brain cancer.\textsuperscript{88} A 2005 epidemiological survey concluded, “in aggregate the human epidemiological evidence is consistent with increased risk in birth defects in offspring of persons exposed to DU.”\textsuperscript{89} Reporters surveying impact sites near Iraqi tanks hit with DU rounds claimed to have measured radiation levels nearly 1,000 times the normal background levels, though these results have not been replicated.\textsuperscript{90} Others attributed the puzzling constellation of symptoms known as “Gulf War Syndrome” to soldiers exposed to burning vehicles and DU rounds.\textsuperscript{91}

Nonetheless, the U.S. Department of Defense (DoD), NATO, and the Health Physics Society (HPS), an organization that specializes in radiation safety, dispute these findings.\textsuperscript{92} According to the HPS, DU is generally considered to be a toxicological rather than a radiological threat, primarily affecting the kidneys.\textsuperscript{93} HPS’ factsheet on DU states the material can potentially become a radiation hazard when “inhaled in the form of tiny insoluble particles, which lodge in the lungs and remain there for very long times.”\textsuperscript{94} The U.N. Environmental Programme (UNEP)

\textsuperscript{86} HASSAN PARTOW, ENVIRONMENTAL IMPACT OF WARS AND CONFLICTS 164 (2008).
\textsuperscript{87} Peterson supra note 83; A-H AL ANI & J BAKER, URANIUM IN IRAQ: THE POISONOUS LEGACY OF THE IRAQ WARS (2009).
\textsuperscript{90} Peterson supra note 83.
\textsuperscript{91} Busby, Chris \textit{The Health Effects of Exposure to Uranium and Uranium Weapons Fallout at 3
\textsuperscript{92} See NATO and DU Factsheet, supra note 80.
\textsuperscript{93} Id.
\textsuperscript{94} Id
describes DU as “a chemical hazard as it is moderately toxic (approximately the same as other heavy metals such as lead). It also presents a low-level radioactive hazard.”

**Burn Pits**

A third source of environmental damage in warzones derives from the disposal of military hardware and other day-to-day wastes generated by personnel occupying U.S. Forward Operating Bases (FOBs) and Contingency Operations Basis (COBs). According to DoD, the occupation of Iraq and Afghanistan generated about ten pounds of solid waste per servicemember per day. Disposal methods for solid waste range from burying drums of hazardous waste on-site to local contractors dumping waste oil directly into local lakes and sewers. The most notorious method of waste disposal is the use of open burn pits.

Beginning in 2001 in Iraq and 2003 in Afghanistan, burn pits were heavily relied upon as a means of waste management at COBs and FOBs. Originally designed as a temporary measure in a contingency environment, burn pits were ubiquitous by 2010, located at dozens of bases throughout Iraq and Afghanistan. A 2009 report found in spite of U.S. Central Command (CENTCOM) regulations to the contrary, the military continued to burn prohibited items, producing plumes of toxic smoke affecting soldier and civilian alike. A *New York Times* article noted, “Every conceivable type of waste was piled high in the pit-plastics, batteries, batteries, batteries.”

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95 IRAQ HOT SPOTS *supra* note 69.
98 See GAO Report *supra* note 96 at 2.
101 See GAO REPORT *supra* note 96 at 2.
appliances, medicine, dead animals, even human body parts-and burned, with a dousing of jet fuel.”

Though DOD admits “[s]moke exposure [from the pits] may cause acute symptoms in some people…” it asserts, “[m]ost short-term effects from exposure to particulate matter and burn pit smoke resolve after the individual leaves the deployed area.” This differs from a now-infamous memorandum drafted by Air Force Lt. Col. Darrin Curtis, a bioenvironmental officer at Joint Base Balad in Iraq. In the memorandum, Lt. Col. Curtis asserted the burn pit at Balad was an “acute hazard for individuals,” adding, “it is amazing the burn pit has been able to operate without restrictions over the past few years without significant engineering controls…” Co-author Air Force Lt. Col. James Elliot, added, “the known carcinogens and respiratory sensitizer released into the atmosphere by the burn pit present both an acute and chronic health hazard to our troops and the local population.”

At larger FOBs private contractors hired by the DoD, most notably Kellogg Brown and Root (KBR), largely handled waste disposal in order to allow uniformed personnel perform other missions. In 2008 Joshua Eller, a civilian computer-aided drafting technician deployed to Balad with the 332nd Air Expeditionary Wing, filed suit against the contractor KBR and its former parent company, Halliburton, claiming it had negligently handled waste disposal at the

105 Id.
Balad burn pit. One article recounts medical waste being burned in the same pit as other trash in direct violation of military regulations and contractual obligations on behalf of KBR. Mr. Eller’s lawsuit claims, “[Mr. Eller] witnessed the open air burn pit in operation at Balad Air Force Base. On one occasion, he witnessed a wild dog running around base with a human arm in its mouth. The human arm had been dumped in the open air burn pit by KBR.” Though such lawsuits received widespread coverage in the press, scant attention was paid to the effect on the local population’s exposure and health.

However, that does not mean the local population is not paying attention. In July 2010 the Christian Science Monitor reported on a tour by Iraqi officials of U.S. hazardous waste management sites in Iraq. This tour was provided in response to a London Times article alleging dumping by U.S. military contractors of fifty-five gallon drums of engine oil, “open acid canisters…within easy reach of children, and discarded batteries lie close to irrigated farmland.” The Times published a Pentagon document estimating eleven million pounds of hazardous waste generated by U.S. forces, which were then allegedly “mixed with recyclable materials and sent from U.S. bases to Iraqi scrap yards.”

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108 Kennedy supra note 106.
109 Id.
110 Id.
developed skin lesions and rashes, while others attributed cancers to the U.S. waste.\textsuperscript{114} Though Iraqi officials on the tour expressed satisfaction with what they saw of the disposal site, Hikmat Gabriel Gorgess, an engineer with Iraq’s Environment Ministry added, “You cannot feel safe through one visit to one site. This [clean up] site…is reassuring, but what about the rest of the sites?”\textsuperscript{115} A RAND study on OIF/OEF environmental issues later recounted several instances of improper waste management by the U.S. military or military contractors, including failures to properly dispose of insecticides, used vehicle batteries, and petroleum products.\textsuperscript{116} The study noted, “[s]oldiers jokingly referred to fuel spills in Iraq as ‘replenishing the oil wells.’”\textsuperscript{117}

This study, titled *Green Warriors: Army Environmental Considerations*, pointed to organizational and structural deficiencies leading to improper hazardous waste handling in contingency zones. Military officials failed to realistically plan for the long term when setting up COBs and FOBs, leading to an exigency mindset and the failure or complete lack of environmental management:

> The longer a camp is likely to be occupied, the more investment must be made in infrastructure to handle wastes and provide healthy, sanitary conditions for the soldiers who live there. Conditions that will suffice for a few weeks or months can become unacceptable hazards to health and safety if a camp is used for longer periods. Decisions about how much to invest in a base camp are complicated by uncertainty about how many Army forces will remain in the region and how long they will remain, which often leads decision-makers to consider base camps as “temporary” even after they have been occupied for years.\textsuperscript{118}

Throughout the recent wars this lack of insight resulted in a failure to properly fund and manage environmental hazards including proper waste disposal. The study notes, “[t]emporary camps often have trouble getting the support they need for environmental support, such as incinerators

\textsuperscript{114} Id.
\textsuperscript{115} See Scott Peterson, *supra* note 111.
\textsuperscript{116} MOSHER ET AL. *supra* note 15 at 202.
\textsuperscript{117} Id.
\textsuperscript{118} Id at 73.
to burn solid, hazardous, and medical wastes.”119 Lack of funding meant ad hoc, substandard waste disposal methods became routine and habitual. While the military has a robust network of environmental engineers and managers to support “enduring” facilities, “Army organizations charged with managing permanent installations in the United States and overseas have not considered base camps as part of their mission, which means that the commanders in a contingency cannot benefit from the expertise of those organizations in planning or running base camps.”120 Michael Wolford, a member of the U.S. Army Engineer School faculty, surveyed U.S. battalion and brigade commanders on the reasons why they did not properly plan for waste management in theater. The responses ranged from, “We’re here to fight a war, not pick up trash,” to “We’re just passing through and do not have time,” to “We’re in the desert. What does it matter?”121

The responses above reflect a pervasive attitude towards environmental responsibility in combat, one that would not be tolerated at stateside facilities. The typical U.S. military commander in combat focuses on two objectives: 1) accomplishing the mission, and 2) keeping his or her subordinates alive.122 The next section will examine why and how avoiding and mitigating environmental destruction in conflict is important to achieving the goals of mission accomplishment and survivability, how military commanders shortchange themselves by failing to include environmental considerations in wartime planning, and why U.S. law and military policy should support including those considerations.

Why it Matters

119 Id.
120 Id. at 74.
121 Kennedy supra note 97.
122 Id.
In spite of one battalion commander’s response to the RAND survey, “If it was important enough for us to do, we would have been told about it before we got here,” the RAND study did make two major findings in its analysis of U.S. military environmental planning: 1) “Environmental issues can have a significant impact on operations;” and 2) “Environmental considerations can be particularly important for success in the post-conflict phase of operations.” The perception among many soldiers of concern for the environment being “just [a]…tree-hugger thing” fails to properly account for how environmental issues can be both the difference between life and death as well as mission success or failure. One article notes, “If troops can dispose of their waste inside the wire in an environmentally friendly way, they may not have to risk lives going outside the wire to dispose of it.”

An Army study of sustainability in contingency operations found:

Sustainability in contingency operations becomes a force multiplier through: reduced casualties associated with resource/supply movement, increased operational efficiencies and effectiveness, reduced logistical burdens, and reduced life-cycle costs. In addition, sustainable operations promote the well-being of soldiers, civilians, and the host nation population through: enhancement of the military’s relationship to host-nation communities, and avoidance of health hazards and post-event liabilities.

Lt. Col. Garth Anderson, a U.S. Army engineer, spent months studying and critiquing units in Afghanistan on their waste disposal practices. In one instance, he observed U.S. troops creating a burn pit in a pile of debris in Kandahar, Afghanistan, in order to dispose of Taliban equipment. “[P]eople tossed in aerosol cans, hazardous waste, petroleum and oil-which could seep into the ground water supply-and medical waste. Smoke hovered over areas where troops

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123 Id.
124 Moshier et al. supra note 15 at xvii.
125 See GAO Report supra note 96.
126 Id.
127 Krooks, supra note 8 at vi.
128 Id.
slept and worked.” What had originally been designed as a temporary fix to destroy Taliban equipment and vehicles quickly became a massive safety hazard for U.S. personnel. Lt. Col. Anderson and his team also saw troops spreading diesel fuel to keep the dust down, a common practice during Desert Storm that could potentially contaminate drinking water. “It’s a pretty significant problem,” Lt. Col. Anderson said.

Simple practices, such as recycling petroleum, oil, and lubricants products, can pay huge dividends for force protection and soldier health. The RAND report observed, “[l]ogistics requirements and costs can be reduced by good practices, for instance, applying technologies to reduce operational requirements for petroleum, oil, and lubricants (POL) or field water treatment systems, or reduce acute threats to soldier health. Good environmental practices can also reduce the resources that must be diverted to address environmental issues.” As the burn pit lawsuit against KBR demonstrates, failure to address environmental hazards in a comprehensive manner can also have long-term implications for soldier health and readiness.

Beyond immediate concerns of self-survival and troop health are also impacts on local populations that can influence the perceived success or failure of contingency operations. The RAND study found “though environmental conditions may be poor and national environmental laws weak or nonexistent, our research indicates locals often care deeply about the environment, which can be critical to their survival, livelihood, and well-being.” Many Americans service members believe the lack of environmental regulation in Iraq and Afghanistan “demonstrated a
low valuation placed on environmental quality by the Afghans [and Iraqis.]”

When RAND analyzed a series of public opinion surveys conducted in Iraq, environmental infrastructure issues, particularly clean drinking water, were ranked as important concerns by nearly seventy-six percent of the respondents, followed by sewage and sanitation. Later surveys also included questions regarding hazardous waste from military activities, solid waste management, and human-health impacts, all of which were found to be top concerns of Iraqi and Afghan citizens. Unsurprisingly, like American parents Afghans and Iraqis want clean drinking water and air for themselves and their children.

As the lines blur between conflict and post-conflict stages of an insurgency, popular support for U.S. forces can largely depend on how quickly environmental concerns are addressed, and whether or not U.S. forces are seen as contributing to the problem. Whereas conventional wars such as World War I and World War II had a defined end to hostilities, marked by peace treaties and signing ceremonies, in today’s conflicts the U.S. military must simultaneously fight insurgencies while providing humanitarian support and reconstruction activities. In these environments the support of the local populace is more important than ever in determining whether or not gains will be substantial and long-lasting. In previous conflicts NGOs such as the U.N. and ICRC were able to step in and mitigate the impact of humanitarian crises caused by war; now, with no defined end to hostilities, NGOs are less willing and able to provide humanitarian assistance to address environmental hazards due to lack of security for their personnel, even after the shooting stops.

136 See Augst supra note 46 at 10673.
137 MOSHER ET. AL., supra note 15 at 174.
138 Id. at 189.
139 Id. at 56.
RAND’s survey of over 110 case studies of contingency operations activities involving an environmental component found approximately sixty percent occurred in the post conflict phase of operations. The same survey established potential effects on U.S. military activities in eight key dimensions: impact on health of U.S. soldiers or others; impact on military mission; additional environmental harm; financial cost or savings to the Army; impact on community or diplomatic relations; impact on the safety of U.S. troops; environmental liability; and impact on reconstruction activities. The study found of the 110 case studies, over one-third of environmental issues can affect reconstruction activities, a key component of the U.S. military post-conflict mission set.

Access to basic services largely dependent on environmental issues can affect whether and how much support a post-conflict government gains, which in turn determines how quickly a country will stabilize. In 2004 Maj. Gen. Peter Chiarelli, commander of the U.S. Army First Cavalry Division, said an analysis by his intelligence officers of insurgent attacks found the insurgency was “strongest in areas with little or no sewer service, faltering electricity, and high unemployment.” Environmental hazards caused by lack of clean drinking water were particularly important to “‘fence sitters,’ who with the handover of sovereignty haven’t decided whether or not they will support the new government or the insurgency.” Maj. Gen. Chiarelli said addressing these deficiencies was important because, “the harder we work to get dollars for these projects, the fewer of my soldiers will get shot at.”

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140 PowerPoint Presentation of Beth Lachman and David Mosher, Environmental Considerations in Post-Conflict military operations and reconstruction, at slide 14 (Jul 27, 2006).
141 Id.
142 Id.
143 Id.
144 MOSHER ET AL. supra note 15 at 64.
146 Id.
Considering natural resources “such as water, soil, trees, and wildlife are the ‘wealth of the poor,’” damage to these resources during and post-conflict can “undermine livelihoods, act as a driver of poverty and forced migration, and even trigger local conflict.”\textsuperscript{147} UNEP found establishing basic services and government,\textsuperscript{148} also said to be fundamental to U.S. Counterinsurgency (COIN) strategy in Iraq and Afghanistan, depend on avoiding damage to natural resources and mitigating such damage when damage is unavoidable.\textsuperscript{149} The operational importance of addressing such concerns is reflected in Maj. Gen. Chiarelli’s remarks above and on a micro-level in the daily challenges faced by U.S. soldiers. In one example cited by the RAND study, U.S. soldiers cut down a grove of date palms in Baghdad in order to halt snipers attacking troop movements, even though an alternative route around the date palms would only be slightly longer.\textsuperscript{150} Shortly thereafter many locals turned against the Americans and threw their support to the insurgency due to what they viewed as a needless destruction of an economic and cultural resource.\textsuperscript{151}

Beyond “winning hearts and minds,” good environmental management and protection also makes sense for the U.S. military from a financial standpoint. Claims raised by U.S. soldiers, civilians, and contractors exposed to hazardous substances can lead to financial loss, whether in the form of a lawsuit or from having to support a medically discharged soldier and train another to take his or her place.\textsuperscript{152} Environmental damage caused by military operations can also cause conflict and diplomatic issues between the U.S. and nations hosting U.S. forces whose support is critical as a launching platform for force projection. One case cited in the RAND

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\textsuperscript{147} \textit{PROTECTING THE ENVIRONMENT supra} note 13 at 9.
\textsuperscript{148} \textit{Id.}
\textsuperscript{149} \textit{See generally JOINT CHIEFS OF STAFF, JOINT PUB 3-24, COUNTERINSURGENCY OPERATIONS, (22 Nov. 2013).}
\textsuperscript{150} MOSHER, ET. AL, \textit{supra} note 15 at 199.
\textsuperscript{151} \textit{Id.}
\textsuperscript{152} MOSHER, ET. AL, \textit{supra} note 15 at 8.
study speaks of a “country supporting U.S. operations in the war on terrorism” where a local national contracted to haul away POL products choose to dump them in a local landfill and sell the barrels. The claim by the host nation cost the U.S. military $1.25 million in cleanup compensation. What happens when environmental damage occurs and a host nation or local national does not have the leverage or resources to demand compensation and/or mitigation from the U.S. military? As the next section demonstrates, there are very few enforcement mechanisms, either under U.S. or international law, to compel U.S. forces to resolve these issues.

**International Law**

In 2010, the DoD managed permanent installations in thirty-eight foreign countries, the majority located in Germany (218 sites), Japan (115 sites), and South Korea (86 sites.) In countries with permanent DoD facilities, bilateral agreements between the U.S. and the host nation govern U.S. forces’ obligations in addressing environmental harm. For example, in 1988 the Government Accountability Office (GAO) found the U.S. military was paying about $28.8 million annually for “maneuver damage” claims in Germany, typically filed by German landowners after military vehicles caused deep ruts and loss of vegetation. The terms of this arrangement between Germany and the U.S. established by the North Atlantic Treaty Organization’s Status of Forces Agreement (NATO SOFA) provided “…for the settlement of claims allegedly caused by U.S. armed forces in the territory of other member states.”

However, in contingency environments where the host nation government is either non-existent

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153 Id at 86.
154 Id.
156 MOSHER, ET. AL., supra note 15 at 22.
158 Id.
or in transition, such agreements rarely exist.\textsuperscript{159} Though U.S. federal statutes cover a variety of environmental harms, generally speaking these laws do not apply extraterritorially.\textsuperscript{160} The following section discusses what rules apply under international law provide relief for post-conflict claimants.

International law consists of two basic categories: conventional law and customary international law.\textsuperscript{161} Conventional law covers formal agreements among countries, such as treaties, while customary international law requires the emergence of a general practice so widespread “it carries with it a sense of legal obligation.”\textsuperscript{162} Customary international law does not bind states consistently rejecting its application.\textsuperscript{163} Given there is no hard and fast rule regarding when and how a general practice becomes part of custom international law, there is often ambiguity and inconsistency in its application. Nonetheless, some principles are so widespread and so established that they are generally accepted to be part of the canon of international customary international law. Most commentators agree that customary and conventional international law carry equal weight in the international community.\textsuperscript{164}

The U.S. is well known for its reluctance to sign or participate in international treaties and/or agreements, environmental or otherwise.\textsuperscript{165} Nevertheless, some treaties affect how the U.S. military handles environmental issues in contingency environments due to partnerships with other countries who are treaty participants. For example, the Basel Convention on the Control of

\begin{footnotes}
\item[159] MOSHER, ET. AL., supra note 15 at 22.
\item[161] MOSHER, ET. AL. supra note 15 at 156.
\item[162] Id.
\item[163] Id.
\item[164] Id.
\end{footnotes}
Transboundary Movements of Hazardous Wastes and Their Disposal, signed but not ratified by the U.S., “places limits on the generation, treatment, and international shipment of hazardous wastes.”166 The treaty, signed by 180 states and the European Union (EU), 167 “significantly complicated” overseas operations of U.S. forces, according to Jim Carr, an attorney for the DoD’s Defense Reutilization Marketing Service.168 First proposed in 1987, the treaty aimed to ban the exports of hazardous wastes from developed to developing countries.169 According to Sharon Phillo, Associate General Counsel at the Defense Logistics Agency (DLA), “[i]n the absence of ratification, it is DoD policy to comply with the provisions of the Convention to the extent possible.”170 Ms. Phillo observed while wastes generated at U.S. facilities and disposed of on-site are not problematic, a waste shipped back to the U.S. (or to a third country) is considered a “transboundary movement” triggering Basel compliance. In this instance, the country of export would be the host country (not the U.S.).”171 Jim Carr states the application of the Basel Convention resulted in instances where hazardous waste cannot be shipped back to the U.S. for proper disposal due to the governments of Spain and Panama refusing to allow the waste to transit the Straits of Gibraltar and Panama Canal.172 Such contingencies resulted in greater

168 Hazardous Waste Disposal supra note 166.
170 Powerpoint Presentation of Sharron Philo, Associate General Counsel, Installations and Logistics Office of General Counsel, DLA, on Basics of Basel, (Jul 13, 2000), available at https://www.denix.osd.mil%2FInternational%2Fupload%2FKeynoteadd.doc&ei=8pCLU-GNIJKbyAS93oLoDg&usg=AFQjCNGXh9ZLfueY_V58M5cZUSM0QZtDSA&sig2=nYqEbRPpGlog2ScgHaaTzQ
171 Id.
reliance in on-site disposal and host nation contractors, potentially causing in even more hazardous waste accumulation and eventually leading to on-site dumping.

Though not applicable in current post-conflict areas, the U.S. is also a signatory to the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques of 1977 (ENMOD Treaty). The ENMOD Treaty arose in the wake of the use of mechanical and chemical defoliants (“Agent Orange”) and cloud seeding techniques in Vietnam, and is designed to prohibit “hostile use of environmental modification techniques having widespread, long lasting, or severe effects.” The ENMOD treaty does not, in and of itself, protect the environment from damage or destruction in warfare. Rather, “it places limitations on environmental modification for hostile purposes.” In reality, the treaty does not afford much protection for the environment, since “most wartime environmental damage results from attacks against enemy forces” rather than attempts to modify the environment, and “[m]ost of the prohibited techniques are military unrealistic anyway.”

Other treaties protecting the environment include the Hague Convention, which codified the principle of customary international law stating methods of injuring the enemy are not unlimited. Hague Convention Number IV (Hague IV) and its accompanying regulations marked the first time environmental principles were incorporated into treaty law. The

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174 *Id.*
177 Hague Convention No. IV, Respecting the Laws and Customs of War on Land, Oct. 18, 1907, 36 Stat. 2277, 205 Consol. T.S. 277, including the regulations thereto [hereinafter Hague IV].
accompanying regulations forbid the destruction of enemy property “unless such destruction…be imperatively demanded by the necessities of war.”\footnote{See Hague Convention Respecting the Laws and Customs of War on Land, Oct. 18, 1907, pt. IV, 36 Stat. 2277 [hereinafter Hague Regulations].} The use of the words “enemy property” rather than “environment” have been criticized as being of limited utility to protect the environment of a country in general rather than strictly property owned by the enemy along with an obligation “on occupying forces to preserve property in an occupied territory.”\footnote{Parsons \textit{supra} note 175 at 448-9.} However, the incorporation of international customary law under the Martens Clause cause U.S. military legal advisors, also known as judge advocates, to advise commanders “environmental protections enjoy the widest spectrum of application of any of the [law of armed conflict] conventions; they apply to all property, wherever located, and by whomever owned.”\footnote{See \textit{OPERATIONAL LAW HANDBOOK} \textit{supra} note 178.} Again, the application is to property, rather than environment. While other treaties specifically reference the environment, they lack the “wide application enjoyed by Hague IV.”\footnote{\textit{Id.}} Article 23(g) of Hague IV forbids the destruction or damage of property in the absence of military necessity,\footnote{Hague IV at art. 23.} a principle of international law discussed below. When analyzing the principle of military necessity regarding the destruction of property, judge advocates are instructed to “pay particular attention to the geographical extent (i.e. how wide the damage will be), longevity, and severity of the damage upon the target area’s environment.”\footnote{\textit{OPERATIONAL LAW HANDBOOK} \textit{supra} note 178 at 336.}

According to Professor Margaret Okordudu-Fubara’s work on the legal implications of “environmental warfare” in the Persian Gulf War,\footnote{See Margaret T. Okordudu-Fubara, \textit{Oil in the Persian Gulf War: Legal Appraisal of an Environmental Warfare}, 23 \textit{ST. MARY’S L.J.} at 197.} the two treaties providing the greatest protection to the environment during armed conflict are the Geneva Convention Relative to the
Protection of Civilian Persons in Time of War 1949 (Fourth Geneva Convention)\textsuperscript{186} and the Additional Protocol to the Geneva Conventions of 1949, and Relating to the Protection of the Victims of International Conflicts of 1977 (Protocol I).\textsuperscript{187} Article 53 of the Fourth Geneva Convention protects the environment of an occupied territory by prohibiting the destruction or damage of “real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or cooperative organizations,” unless absolutely necessary for lawful military purposes.\textsuperscript{188} Under Article 147, “extensive” damage or destruction of property “not justified by military necessity and carried out unlawfully and wantonly” constitutes a “grave breach” of the Convention, requiring prosecution and extradition of persons suspected of committing the breach.\textsuperscript{189} Judge advocates are reminded “a simple breach only requires parties to take measures necessary for the suppression of the type of conduct that caused the breach. United States’ policy requires prompt reporting and investigation of all alleged war crimes (including environmental violations) as well as taking appropriate corrective action as a remedy when necessary.”\textsuperscript{190} Adam Roberts, in his essay on the law of war and environmental damage, observes the inclusion of this prohibition “in a treaty that has virtually universal acceptance by states, and is indisputably in force in international wars, adds to its significance.”\textsuperscript{191}

The United States has not ratified the 1977 Protocols Additional to the Geneva Conventions (API and APII) and is therefore only bound by those provisions reflecting
customary international law and those restating parts of the Fourth Geneva and Hague
Conventions. Protocol I goes beyond baseline protections of property, instead extending a
prohibition on the employment of “methods or means of warfare which are intended, or may be
expected, to cause widespread, long-term, and severe damage to the natural environment.”
Additionally, Article 55 states, “Care shall be taken in warfare to protect the natural environment
against widespread, long-term and severe damage. This protection includes a prohibition of the
use of methods or means of warfare which are intended or may be expected to cause such
damage to the natural environment and thereby prejudice the health or survival of the
population.”

Protocol I differs from previous attempts at protecting the environment by setting a
maximum threshold of permissible environmental destruction, rather than employing a balancing
test of military necessity versus expected destruction. Regardless of the amount of justification
or strategic importance of such destruction, any act that exceeds this threshold constitutes a
violation of the law of armed conflict. Articles 35 and 55 define this limit as any “method of
warfare which is intended, or may be expected, to cause widespread, long-term, and severe
damage to the environment.” Unlike other treaties, Protocol I goes beyond intentional damage
to the environment to include damage which is reasonably foreseeable. The Commentary to
API defines “long term” as measured in decades, i.e. twenty to thirty years.

AP I]. OPERATIONAL LAW HANDBOOK supra note 178 at 337.
193 AP I, art. 35.3.
194 AP I, art. 55.
195 OPERATIONAL LAW HANDBOOK supra note 178 at 337/
196 Id.
197 AP I, arts. 35 and 55.
198 MICHAEL BOTHE ET AL., NEW RULES FOR VICTIMS OF ARMED CONFLICT:
199 Claude Pilloud, International Committee of the Red Cross, Commentary on the Additional Protocols of 8 June
doctrine and other experts borrowed the term “widespread” from ENMOD, defining the term as several hundred square kilometers.200 “Severe” incorporates Article 55’s reference to an act that “prejudices the health or survival of the population.”201 The conjunctive phrase “widespread, long-term, and severe damage” requires all three elements to be present, thereby setting the threshold very high.202 One commentary on Article 35 observed it would “not impose any significant limitation on combatants waging conventional warfare. It seems primarily directed instead to high-level decision-makers and would affect such unconventional means of warfare as the massive use of herbicides and chemical agents which could produce widespread, long-term, and severe damage to the natural environment.”203 Another argues the threshold is so high even “the majority of the carnage caused during World Wars I and II (with the possible exception of the nuclear devices exploded over Japan) would not have met this threshold requirement.”204

Other provisions of API regarding the environment include Article 55’s prohibition on reprisals against the natural environment, as well as Article 54’s prohibition on the destruction of lands “indispensable to the survival of the civilian population” as well as Article 56’s prohibition on targeting “objects indispensable to the survival of the civilian population” such as agricultural areas and drinking water installations, “for the specific purpose of denying them their sustenance value to the civilian population.”205 Article 56 further requires the “protection of works and installations containing dangerous forces… namely dams, dikes, and nuclear electrical

200 OPERATIONAL LAW HANDBOOK supra note 178 at 338.
201 AP I, art 55.
204 OPERATIONAL LAW HANDBOOK supra note 178 at 338.
205 API, supra note 192, art. 54-56.
generating stations…if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.”  

In the early stages of OEF some accused the U.S. of violating Article 56 by attacking the hydroelectric power station near the Kajaki Dam in Afghanistan. Afghans claim transmission lines from the dam were hit by an airstrike in November 2001 and have been hit on several occasions since then. Though not directly targeted by the airstrikes, the office of the U.N. regional coordinator for southern Afghanistan reported damage to the 300 foot high, 900 foot long dam could have created massive flooding in important agricultural lands.

Two other treaties indirectly implicated in protecting the environment are the 1954 Hague Cultural Property Convention and the 1980 Certain Conventional Weapons Convention (CCWC) and Protocols. The U.S. did not ratify the Hague Cultural Property Convention until 2008, though it claimed its military operations were consistent with the treaty before that point. The Hague Cultural Property Convention and First Protocol protect a broad range of property regarded as “cultural property,” including “property of great importance to the cultural heritage of every people, such as monuments of architecture, art or history…archaeological sites…” and buildings such as “museums, large libraries, and depositories of archives” containing a large amount of cultural property. Although the treaty does not directly cover environmental

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206 Id.
207 Augst supra note 46 at 10679.
208 Id.
damage, actions large enough and damaging enough to violate this treaty are also likely to
damage the environment.\textsuperscript{212} Like the other treaties mentioned above, many observers criticize the
Hague Cultural Property Convention for lacking an enforcement mechanism.

The 1980 U.N. Convention on Certain Conventional Weapons (UNCCCCW) states “it is
prohibited to use methods or means of warfare which are intended, or may be expected, to cause
widespread, long-term, and severe damage to the natural environment”\textsuperscript{213} The U.S. ratified the
UNCCCW in 1995. Article 2(4) of the UNCCW prohibits “[m]aking forests or other kinds of
plant cover the subject of an attack by incendiary weapons except when such natural elements
are used to cover, conceal, or camouflage combatants or other military objectives, or are
themselves military objectives.”\textsuperscript{214} Again, the use of the conjunctive “widespread, long-term,
and severe (emphasis added)” damage to the environment sets a very high threshold, similar to
that of API. Therefore, the usefulness of this prohibition is limited.

The Convention on Cluster Munitions (CCM) entered into force on August 1, 2010. The
U.S. is not part of the CCM, insisting “[c]luster munitions] are acceptable under the laws of
armed conflict” and “an effective weapon against a variety of targets, such as air defense radars,
armor, artillery, and personnel.”\textsuperscript{215} The CCM “prohibits all use, production, transfer, and
stockpiling of cluster munitions” citing the wide area impact of the weapon and the inability to
distinguish between combatants and non-combatants.\textsuperscript{216} Signatories believe wide failure rate of
the bomblets results in UXO that kills and maims civilians.\textsuperscript{217} According to the Convention’s

\textsuperscript{212} Jay Austin & Carl Bruch, supra note 191.
\textsuperscript{213} Convention on Prohibitions or Restrictions of the Use of Certain Conventional Weapons
Which May Be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, Oct.
10, 1980, 19 I.L.M. 1523 [hereinafter CCW].
\textsuperscript{214} Id. art 2(4).
\textsuperscript{215} OPERATIONAL LAW HANDBOOK supra note 178 at 15.
\textsuperscript{216} The Convention on Cluster Munitions to End the Harm Caused by Cluster Munitions, May 30, 2008,
\textsuperscript{217} Id.
supporters, the use of cluster munitions fails the test of discrimination, one of the key principles underlying customary international law. Customary international law is the other major component of the body of international law guiding protection of the environment during armed conflict.

**Customary International Law**

The four underlying principles of customary international law for the law of war are proportionality, discrimination, military necessity, and unnecessary suffering (also known as humanity). Though not often couched in environmental terms, each of these principles relates to protecting the environment because they underlie the notion that wanton and unnecessary destruction of the environment which causes suffering on the part of the civilian population is a violation of the law of war. These principles are codified in some treaties the U.S. is not a party to; therefore, the U.S. is still bound to those segments of these treaties regarding these four principles in its observance of customary international law.

The principle of military necessity as codified in Hague IV, forbids a belligerent “to destroy or seize the enemy’s property, unless such destruction or seizure be imperatively demanded by the necessities of war.” Military strategists believe this principle only allows a combatant that amount of force necessary to secure the surrender of an opponent as soon as possible.

During the Persian Gulf War, Iraq deliberately released 1.5 million barrels of oil into the Persian Gulf, arguing it was trying to slow the advance of Coalition Forces; additionally, retreating Iraqi forces sabotaged Kuwaiti oil wells, setting 611 wells alight and damaging others to release millions of gallons of oil into the ecosystem. It is arguable the smoke from the oil

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218 Hague IV, *supra* note 210 at art 23(g).
220 *Id.*
well fires did hinder Coalition Forces’ aerial operations by obscuring the Iraqi ground movements. However, the action then fails the principle of proportionality, which states an “anticipated loss of life and damage to property incidental to attacks must not be excessive in relation to the concrete and direct military damage expected to be gained.” The massive smoke clouds produced by the Kuwaiti oil fires lingered for months, releasing dangerous toxins to be inhaled by the civilian population of Kuwait as well as neighboring Gulf States. "Huge, flammable lakes" threatened several large residential areas. The resulting oil slick created by the release of millions of gallons of oil into the Persian Gulf endangered desalination plants supplying the entire region’s drinking water. The severe atmospheric pollution caused by the fires was disproportionate to any anticipated military gain, and the damage was too massive to be dismissed as mere collateral damage. According to one expert, the destruction of “all twenty-six gathering centers that were designed to separate the oil, gas, and water from one another—a process that is essential for oil production” as well as technical specifications of each well demonstrated the true nature of Iraqi intentions. No conceivable military advantage was to be gained by this wanton destruction, only revenge on the part of a defeated army.

Iraq was not alone in being accused of violating customary international law during Desert Storm and OIF. As mentioned above, many countries believe cluster munitions used by the U.S. during the wars failed the test of discrimination, which demands combatants and non-combatants must be distinguished so parties to an armed conflict direct their operations only against combatants and military objectives. As memorialized in Article 51, AP I, combatants

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221 OPERATIONAL LAW HANDBOOK supra note 178 at 12.
222 DAS supra note 219.
223 Id at 145.
224 Id at 151
225 Id at 151-152
226 OPERATIONAL LAW HANDBOOK supra note 178 at 11, citing API, art. 48.
prohibited from attacking in a manner “not directed against a specific military objective;”
“employ[ing] a method or means of combat the methods of which cannot be directed at a
specified objective;” “employ[ing] a method or means of combat the effects of which cannot be
limited as required;” and “…of a nature to strike military objectives and civilians or civilian
objects without distinction.”

Amnesty International declares, “Cluster bombs present a high
risk of violating the prohibition of indiscriminate attacks because of the wide area covered by the
numerous bomblets released.” Additionally, the organization condemns the relatively high
initial failure rate of the bomblets, which “do not explode upon impact, becoming de facto anti-
personnel mines” endangering non-combatants who later encounter undetonated munitions.

Near the beginning of OIF and OEF, the failure to discriminate between combatants and
non-combatants due to the bomblet dud rate was exacerbated by an unintentional oversight with
horrifying results: food packets distributed by Coalition Forces via aircraft resembled the same
dimensions and colors as cluster bomb munitions bomblets. In 2001, ten year old Mohebolah
Seraj lost three fingers in an explosion when he picked up an object he mistakenly thought to be
an aid packet; this type of injury is especially devastating in a country where the majority of the
population earns their living from manual labor. When the obvious danger was pointed out to
Gen. Richard Myers, the chairman of the Joint Chiefs of Staff at the time, he acknowledged the
issue, stating a re-design was in progress and fliers were being dropped to inform civilians of the

227 AP I, art. 51, para. 4(c).
228 AMNESTY INTERNATIONAL, AFGHANISTAN: ACCOUNTABILITY FOR CIVILIAN DEATHS (2001),
229 Id.
231 Amy Waldman, Bomb Remnants Increase War’s Toll, NYTIMES.COM, Nov. 23, 2001,
difference. Gen. Myers remarked, “Unfortunately, they get used to running to yellow. So…” Later packages were changed to a “salmon” color.

The fourth principle of international law, the principle of unnecessary suffering (also known as “humanity” or “superfluous injury”) states, “it is especially forbidden…to employ arms, projectiles, or material calculated to cause unnecessary suffering.” This principle may strike some as bizarre given the horrific nature of war, but contained therein is a tacit acknowledgement some suffering is inherent to armed conflict. When a single CBU submunition explodes, it delivers 308 pieces of shrapnel in all directions traveling at “three times the speed of a bullet shot from an automatic rifle, each piece capable of causing injury at great distances.” If the bomblet does not kill the individual right away, removing the fragments, which weigh less than thirty grains (1.94 grams), is very difficult. Some aid organizations argue the maiming and disfigurement caused by cluster munitions violate the principle of unnecessary suffering due to the painfulness and severity of the wounds among the survivors. These organizations believe the second and third-order effects of environmental harm, including “poisoning” of potential agricultural lands, water supplies and residential areas, also inflicts unnecessary suffering on the civilian population as a whole.

Beyond the four main principles, “soft-law instruments” guide whether and how armed combatants protect the environment during and after conflict. “Soft-law instruments” are those

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233 Id.
235 Hague IV, art. 23(e).
236 McDonnell supra note 52 at 69.
237 Id.
238 Id. at 7.
239 Augst supra note 46 at 10672.
agreements not legally binding among participants. For example, the Declaration of the United Nations Conference on the Human Environment, also known as the “Stockholm Declaration” of 1972 states, “States have… the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.” This responsibility appears to apply, by extension, to areas affected during times of armed conflict and the damage inflicted therein. The Rio Declaration of 1992 went further, asserting “War is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment during times of armed conflict and cooperate in its further development, as necessary.” Following the Rio Declaration the U.N. General Assembly adopted Resolution 47/37, Protection of the Environment During Times of Armed Conflict, urging states to implement internal measures to comply with international law protecting the environment during armed conflict. These declarations are important first steps in recognizing the importance of protecting the environment both during and after conflicts and could serve as precursors for later treaties. The United States is a signatory to all three items, with some reservations on their application and interpretation.

There are several problems with relying on international law as a means to deter or address environmental destruction caused by war. As stated supra, many of these treaties either lack enforcement provisions completely or set thresholds so high for enforceability as to be

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240 Michael Bothe et. al, International Law Protecting the Environment During Armed Conflict: Gaps and Opportunities, 584 INTERNATIONAL REVIEW OF THE RED CROSS 879 (Sept. 30, 2010).
242 Bothe supra note 240.
245 Id.
essentially useless. Furthermore, as the world’s only remaining superpower, it is unlikely that the U.S. would submit itself to the jurisdiction of a regulatory body to judge the rightness or wrongness of its military actions, as demonstrated by the U.S. refusal to join the International Criminal Court.\textsuperscript{246} Therefore, the only true avenue for redress for environmental damage caused by U.S. combat operations a country or civilian local national may seek is through the U.S.’s own rules and regulations. The next section will examine internal U.S. laws, policies, and regulations guiding the U.S. military in setting its environmental agenda during and after armed conflict.

\textbf{U.S. Domestic Law and Policy}

Since the 1970’s, a variety of environmental statutes have covered U.S. forces stationed in the Continental U.S. (CONUS) as well as Alaska and Hawaii.\textsuperscript{247} Generally speaking, domestic environmental statutes do not apply extraterritorially.\textsuperscript{248} In most instances a statute must have specific language enabling application of a U.S. statute exterritorially.\textsuperscript{249} Nonetheless, many U.S. environmental requirements extend outside U.S. borders through the operation of executive branch policies and regulations, as well as occasional court cases.\textsuperscript{250} The following paragraphs discuss the regulations, policies, and laws apply domestically and overseas to U.S. military installations and operating bases.

As mentioned above, RCRA extended to cover abandoned military munitions domestically under the Military Munitions Rule of 1997. Prior to 1997 RCRA defined some guidelines for hazardous waste generation, transportation, treatment, storage, and disposal for

\textsuperscript{248} OPERATIONAL LAW HANDBOOK \textit{supra} note 178 at 328.
\textsuperscript{250} \textit{Id.} at 328.
domestic U.S. military installations, but did not completely apply to DoD personnel until the Federal Facility Compliance Act of 1992.\textsuperscript{251} This Act extended RCRA to federal facilities, subjecting federal employees to personal criminal liability “for environmental violations of any federal or state solid waste or hazardous waste law.”\textsuperscript{252} In addition to RCRA guidelines, military installations must also comply with state permitting systems setting requirements for hazardous waste treatment, storage, and disposal.\textsuperscript{253}

When conducting any type of training or operations involving the management of hazardous waste, unit commanders are required to implement a hazardous waste management plan, including collection and storage of solid waste, clean up and reporting of hazardous spills, and transportation of hazardous materials according to local and installation procedures which also comply with state and federal regulations.\textsuperscript{254} Additionally, the Emergency Planning and Community Right-to-Know Act (EPCRA), extended to federal facilities via Executive Order (EO) 12956, requires all military installations to have reporting and clean up procedures in the event of an accidental hazardous material release.\textsuperscript{255} In order to adhere to local, state, and federal environmental regulations, the military employs a vast array of environmental management and legal personnel at both its domestic and overseas fixed installations.

Furthermore, the National Environmental Policy Act (NEPA), requires all federal entities including the military to provide a detailed evaluation of the environmental impact of any proposed major action significantly affecting the quality of the human environment.\textsuperscript{256} Initially

\begin{flushleft}
\textsuperscript{251} See generally Resource Conservation and Recovery Act of 1976, 42 USC § 6901 et seq.
\textsuperscript{252} Id at A-26.
\textsuperscript{253} U.S. DEP’T OF ARMY, FIELD MANUAL 3-34.5, ENVIRONMENTAL CONSIDERATIONS paraA-53 (16 Feb. 2010) [hereinafter FM 3-34.5]
\textsuperscript{254} Id. at A-53.
\textsuperscript{255} Id. at A-9.
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appeals courts differed regarding NEPA’s applicability extraterritorially;\textsuperscript{257} later, EO 12114 required the military to conduct environmental analysis for major federal actions affecting the human environment overseas.\textsuperscript{258} Department of Defense Directive (DoDD) 6050.7 implements EO 12114.\textsuperscript{259} DoDD 6050.7 requires DoD officials to take environmental considerations into account when they conduct a major federal action doing significant harm to the environment of “the global commons,”\textsuperscript{260} of a foreign nation not involved in the original action,\textsuperscript{261} and of a foreign nation involving either a product which produces a toxic emission regulated by Federal law or strictly regulated to protect the environment against radioactive substances and outside of the United States\textsuperscript{262} significantly harming natural or ecological resources of global importance designated by the President or Secretary of State.\textsuperscript{263} The aim of this program is “to provide information to decisionmakers, increase awareness and interest in environmental concerns, and encourage environmental cooperation with foreign nations.”\textsuperscript{264} Field Manual (FM) 3-34.5 elaborates, “[DoDD 6050.7]’s sole objective is to establish internal procedures to achieve this purpose, and nothing in it shall be construed to create a cause of action.”\textsuperscript{265}

Both EO 12114 and DoDD 6050.7 exclude military actions undertaken “when the national security or interest is involved or the action occurs in the course of an armed conflict.”\textsuperscript{266} Though exemptions on the basis of national security are not necessarily applicable


\textsuperscript{259} Id.

\textsuperscript{260} U.S. DEP’T OF DEF, DIR. 6050.7 ENVIRONMENTAL AFFECTS ABROAD OF MAJOR DEPARTMENT OF DEFENSE ACTIONS, para E.1.1 (31 Mar. 1979) [hereinafter DoDD 6050.7].

\textsuperscript{261} Id at E2.2.1.1

\textsuperscript{262} Id at para. E2.2.1.2.

\textsuperscript{263} Id. at paras E2.2.1.3.

\textsuperscript{264} FM 3-34.5 supra note 253 at A-73

\textsuperscript{265} Id. at para A-68.

during peacekeeping and support operations, they can be extended to these operations with the certification of the Secretary of Defense or the President. 267 Decisions to extend coverage to these operations is exceedingly rare; therefore, EO 12114 has little practical effect during contingency or operational deployments. 268 Exemptions for reasons of national security are characteristic of nearly all DoD instructions and directives regarding the environment, including DoDI 4715.5 Management of Environmental Compliance at Overseas Installations and DoDI 4715.8 Environmental Remediation Policy for DoD Activities Overseas. 269

At permanent installations overseas, however, there is a different dynamic. The U.S. depends on the goodwill of host nation governments for stationing and airspace access. Several military regulations protect natural resources and the environment at enduring U.S. military installations, unlike contingency outposts. The overall authority for these matters is Department of Defense Instruction (DoDI) 4715.5. DoDI 4715.5’s authority is limited to the boundaries of the installation, and does not apply to off-installation training and operations of military aircraft and vessels. 270 Unlike contingency environments, the U.S. military has a robust body of environmental standards for overseas fixed installations published in the Overseas Environmental Baseline Guidance Document (OEBGD). 271 The OEBGD serves as a generic template for overseas installations establishing minimum standards and practices later developed into country-specific standards known as Final Governing Standards (FGS). 272 DoDI 4715.5 specifically exempts operational deployments from environmental standards in cases of

267 Id. See also MOSHER ET. AL., supra note 15 at 33.
268 Id.
269 Id U.S. DEP’T OF DEF, INSTR. 4715.5, MANAGEMENT OF ENVIRONMENTAL COMPLIANCE AT OVERSEAS INSTALLATIONS, U.S. DEP’T OF DEF, INSTR. 4715.8, ENVIRONMENTAL REMEDIATION POLICY FOR DO/D ACTIVITIES OVERSEAS.
270 DoDI 4715.5 supra note 269 at para 2.1.
271 Id. at para, E2.1.5.
272 Id. at para E2.1.1.
“hostilities, contingency operations in hazardous areas, and when U.S. Forces are not under full control of the United States.”

When environmental damage does occur in countries with established installations, DoDI 4715.8 controls the extent and amount of remediation. Again, this regulation specifically excludes “actual or threatened hostilities, security assistance programs, peacekeeping missions, or relief operations” as well as “logistics, maintenance, or administrative support functions provided by a contractor off base.” The Instruction is designed to operate in the absence of an applicable international agreement. According to DoDI 4715.8, the military is required to “take prompt action to remedy known imminent and substantial endangerments to human health and safety due to environmental contamination” caused by DoD operations.

National security exemptions are not always absolute. In 2010 Congress addressed use of burn pits in the National Defense Authorization Act (NDAA) for Fiscal Year 2010, requiring the “development of regulations that prohibit the disposal of covered waste in open-air burn pits during contingency operations except in circumstance in which the Secretary determines that no alternative disposal method is feasible.” Taking note of previous exemptions in circumstances of national security, Congress added, “[s]uch regulations shall apply to contingency operations that are ongoing as the date of enactment of this Act, including Operation Iraqi Freedom and Operation Enduring Freedom, and to contingency operations that being after the date of the enactment of this Act.” In response the DoD issued Directive-Type Memorandum 09-032,
“prohibiting the disposal of covered waste in open-air burn pits during contingency operations except when the relevant commander of a combatant command makes a formal determination that no alternative disposal method is feasible.” \textsuperscript{280}

In September 2009 CENTCOM, the higher headquarters for U.S. forces in Iraq and Afghanistan, issued CENTCOM Regulation 200-2 establishing minimal acceptable standards for environmental management and waste disposal for units in its area of operations. \textsuperscript{281} According to CENTCOM officials, this regulation was designed to “codify and expand” pre-existing “Environmental Standard Operating Procedures” (SOP)s issued by theater commanders in Iraq and Afghanistan. \textsuperscript{282} Unlike SOPs, regulations have the weight of criminal enforceability rather than merely serving as guidance. Nonetheless, GAO personnel reviewing disposal operations in 2010 found four out of the five FOBs surveyed did not comply with CENTCOM Regulation 200-2. \textsuperscript{283} When asked why they failed to comply with the regulation personnel responded either they were unaware of the regulation or compliance was impossible given the limited manpower devoted to solid waste management. \textsuperscript{284} GAO further found compliance further complicated by the vast amount of packaging or actual material used by the military on the list of prohibited items not to be burned. \textsuperscript{285} However, in one instance the presence of “strong leadership and adequate resources” allowed personnel to comply with 200-2, in spite of obstacles. \textsuperscript{286} As recently as December 2013 the media reported notwithstanding the military’s outlay of $5.4 million for modern incinerators over the past two years to eliminate the use of open burn pits in

\textsuperscript{280} GAO 11-63 supra note 99 at 13 citing DTM 09-032.
\textsuperscript{281} See generally CENTCOM, REG. 200-2, ENVIRONMENTAL QUALITY: PROTECTION AND ENHANCEMENT OF ENVIRONMENTAL ASSETS.
\textsuperscript{282} GAO 11-63 supra note 99 at 12.
\textsuperscript{283} GAO 11-63 supra note 99 at 2.
\textsuperscript{284} Id at 21.
\textsuperscript{285} Id at 19.
\textsuperscript{286} Id at 21.
Afghanistan, many of these incinerators sit idle while burn pits continue to be used in contravention to law and regulation; as a result, even more military personnel are exposed to toxic smoke, potentially leading to “long-term health risks for camp personnel, including reduced lung function and exacerbated chronic illnesses, ranging from asthma to chronic obstructive pulmonary disease.”

In addition to DoD Instructions and Directives, each service publishes internal environmental regulations designed for the garrison environment. For example, the Army’s main regulation on Environmental Compliance, Army Regulation (AR) 200-1, directs Garrison commanders (GCs) to “anticipate and allow for mission surge conditions that could result in times of national security emergencies, including but not limited to contingency operations… where mission surge conditions could potentially exceed permit limitations or other environmental requirements…” which require the GC to request exemption from the regulation.

Garrison commanders command permanent installations rather than FOBs and COBs. The next passage in the regulation adds the remainder of guidance in the regulation does not apply to deployed/contingency operations, including important areas such as “Planning and Implementation,” “Emergency Preparedness and Response,” “Pollution Prevention,” and “Environmental Cleanup.” There are no analogous regulations to AR 200-1 for the deployed environment. This lapse is particularly striking when one considers the Army would be most in need of guidance regarding environmental issues in contingency operations, given its position as

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288 U.S. DEP’T OF ARMY, REG. 200-1, ENVIRONMENTAL PROTECTION AND ENHANCEMENT para 15-7 (13 Dec. 2007).[hereinafter AR 200-1]

289 Id.

290 Id. at paras 15-8, 3-1, 3-6, 7-1, and 12-1.
the largest of the four services and the one most likely to be charged with waste disposal
operations at forward operating bases in theater.

A survey by the U.S. Army Engineers of applicable Army environmental guidance found
“many specific actions to enhance environmental situations such as You Spill, You Dig
Handbook…[h]owever, without overarching policy to pull all of this guidance together, each
operational command is left to address environmental situations separately, usually on an ad hoc
basis.”291 Air Force, Navy, and Marine policies and regulations were found to have similar
deficiencies.292 The survey concluded, “[a] majority of documents that directly and indirectly
apply to contingency operation sustainability referred either to issues associated with
environmental safety and occupational health, such as pest and vector control, or dealt with
CONUS requirements that were vague in how they should be applied in contingency
operations.”293

While operational deployments remain largely exempt from environmental regulation, a
number of publications serve as guidance rather than as a mandate in contingency environments.
For example, Joint Publication (JP) 4-04, Joint Doctrine for Civil Engineering Support, and FM
3-34.5, Environmental Considerations, both suggest using the OEBGD as a method of
establishing minimum environmental standards in contingency operations.294 The latest version
of FM 3-34.5 dated February 2010 introduces the concept of an “environmental ethic,” defined
as “taking care of the environment because it is the right thing to do; this ethic is the operating
principle and value that governs individual Soldiers, units, and the Army.”295

291 Krooks supra note 8 at vi.
292 Id.
293 Krooks supra note 8 at 4.
294 JOINT CHIEFS OF STAFF, JOINT PUB 4-04, JOINT DOCTRINE FOR CIVIL ENGINEERING SUPPORT, (Sept. 27 2001),
FM 3-34.5 supra note 253 at para 1-21. MOSHER ET. AL supra note 15 at 29.
295 FM 3-34.5 supra note 253 at para 1-23.
In the absence of law and regulatory guidance, it is largely up to the in-theater commander to decide what, if any, environmental considerations will apply in a contingency environment. The primary instruments of executing guidance in theater are SOPs and/or operations orders. An Army survey of applicable guidance found Annex L, the designated annex for “Environmental Considerations” in operations orders, is “the single most important source for environmental compliance obligations for U.S. forces who are participating in OCONUS contingency operations.” If drafted correctly, Annex L integrates baseline guidance, DoD issuances, environmental safety guidelines, and the opinion of health services or environmental officers as sources for environmental requirements, thereby serving as a gap-filler for missing policy. Unfortunately, too often the inclusion of Annex L in operations orders is cut-and-pasted from higher headquarters directives overly broad or ill-suited for the operation in question.

In addition to largely inapplicable DoD Directives and Instructions and outdated or unsuitable operations orders, commanders must rely on “applicable international agreements” for environmental guidance in contingency environments. The Iraq SOFA contains a single reference consisting of two sentences on environmental protections, basically affirming the U.S. “commitment to respecting applicable Iraqi environmental laws, regulations, and standards.” The Afghan version of this document, known as the “Strategic Partnership Agreement,” contains no provisions for protecting the environment, only a commitment to develop natural resources.

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296 Krooks supra note 8 at 3.
297 Krooks supra note 8 at 3.
298 Id. at 3.
299 Id.
300 Agreement Between the United States of America and the Republic of Iraq on the Withdrawal of United States Forces from Iraq and the Organization of their Activities During their Temporary Presence in Iraq, Nov. 7, 2008 Article 8.
Oftentimes in regions in conflict there is no government with which to make an agreement, leaving decisions on incorporating and implementing environmental standards largely to the in-theater commander and his staff.

**Causes of Action**

In the absence of applicable international agreements, what recourse do Iraqi and Afghan citizens have should the U.S. leave behind environmental damage? One tool often employed by the military in contingency operations is the Foreign Claims Act (FCA), passed by Congress in 1942 to “promote and maintain friendly relations” with foreign nationals “for the purpose of promoting and maintaining the prompt settlement of meritorious claims” for property loss, injury, or death caused by servicemembers or civilians deployed overseas.\(^{302}\) Claims made under the FCA are compensable provided they result from the negligent or wrongful acts or omissions of U.S. military personnel engaged in noncombat activities.\(^{303}\) Though limited to noncombat activities, the FCA is the most widely-used claims statute in foreign deployments of military personnel, including those areas considered to be warzones.\(^{304}\) Today’s combat deployments involve a wide variety of activities beyond killing the enemy, and sometimes those activities result environmental damage. Consider the daily operations of a forward operating base: depending on the context, everything from solid waste disposal to convoys travelling to another FOB could potentially give rise to a claim under the FCA.

Nevertheless, the FCA does have its limitations. First of all, the Act is limited to noncombat activities and therefore would not cover collateral damage from the ordinary destruction of combat, such as damage from an aerial bombardment or the targeting of a dual use target.

\(^{302}\) Foreign Claims Act, ch. 645, 55 Stat. 880 (1942) (current version at 10 U.S.C. § 2734(a))

\(^{303}\) Id.

\(^{304}\) OPERATIONAL LAW HANDBOOK *supra* note 178 at 301.
Persons harmed by UXO from cluster munitions would likely be unable to file a claim under the FCA. There is an “in scope” requirement for foreign nationals hired in the country where the incident occurred while working for the United States, though there is no scope of employment requirement for U.S. military personnel. Therefore, it would be difficult to demonstrate a local national contractor who chooses to re-sell hazardous waste at the local scrap market rather than properly dispose of it was acting within the scope of his employment. Under the Army regulation dealing with such claims, AR 27-20, FCA claims must be presented to U.S. or other authorized officials within two years of accrual. Given the U.S. withdrawal from Iraq in December 2011, Iraqi citizens would currently be ineligible to file a claim for U.S. environmental damage.

FCA claims are investigated and adjudicated by U.S. military officers appointed to a Foreign Claims Commission (FCC), which applies the local law or custom to determine liability and damages. Punitive damages are not allowed under the FCA. No payments may be made unless “the amount tendered is acceptable by the claimant in full satisfaction,” with the maximum discretionary award being $100,000. One drawback to the FCA is the use of local law in determining liability and negligence which inevitably leads to a host of “challenging legal, gender, and ethnic issues” that may conflict with the values of the ordinary American taxpayer. The loss of life through military negligence under the FCA generates a payment of $15,000 in Afghanistan, while brain damage incurred by an Australian woman hit by a golf ball

305 Id.
307 OPERATIONAL LAW HANDBOOK supra note 178 at 302.
308 § 2734(d).
on a U.S. military golf course warrants payments of over $1 million. Additionally, the death of an Afghan woman results in half the compensation for that of an Afghan man. 310

What about claims of governments? After all, the default position of the DoD is that international agreements supersede any DoD policy or regulation. 311 Generally speaking, under the International Agreement Claims Act, the FCA does not apply in foreign countries where the U.S. has a pre-existing agreement providing for the “settlement or adjudication …of claims against the United States arising out of the acts or omissions of a member or civilian employee of an armed force of the United States.” 312 Such instances are generally handled under provisions of the status of forces agreement (SOFA) between the U.S. and the foreign country. 313 Under the Iraq SOFA, formally called the U.S.-Iraq Security Agreement, Article 21 provides for a waiver of intergovernmental claims arising from “damage, loss, or destruction of property, or compensation for injuries or deaths that could happen to members of the force or civilian component of either Party arising out of the performance of their official duties in Iraq.” 314

The Iraq-U.S. SOFA demonstrates several flaws underlying relying on international agreements to address environmental concerns. Overall, participating parties are usually more concerned with politically sensitive issues such as basing rights and troop numbers, and only rarely address environmental damage; also, there is an inherent power differential between the U.S. and practically any other country where contingency operations may occur. As AEPI observed, “[l]ooking back at the last two decades, the U.S. Army has been deployed primarily to

310 Id.
311 OPERATIONAL LAW HANDBOOK supra note 178 at 332.
312 10 U.S.C. § 2734a (commonly referred to as the International Agreement Claims Act).
313 Id
countries deeply in crisis (e.g., Somalia, Afghanistan, Iraq). All these crises have had an environmental component from either direct military action or other causes.\footnote{\textit{Review of UNEP} supra note 64 at 17-18.}

Though some see U.S. efforts as inadequate, the U.S. military has taken steps to address environmental damage in post-conflict areas. One method the U.S. used to address some pre-existing environmental issues and those caused by combat activities is the Commander’s Emergency Response Program, commonly known as “CERP.”\footnote{\textit{Operational Law Handbook} supra note 178 at 305.} Originally designed to respond to “urgent humanitarian relief and reconstruction requirements,” CERP funds were expanded to include civil works projects, including dams and other infrastructure damaged in combat operations. As of 2011, $62 billion has been appropriated for relief and reconstruction in Afghanistan, along with an additional $61 billion in funds for Iraq.\footnote{Special Inspector General for Afghanistan Reconstruction (SIGAR), “Quarterly Report to the United States Congress,” April 2011, 42. Fiscal year 2011 appropriations reflect only amounts made available under continuing resolutions, not amounts made available under P.L. 112−10.} The CERP program has been criticized for its management at the tactical, rather than the strategic level. Without an overarching strategy, environmental problems are addressed in a haphazard manner, largely dependent on the desires of the local government, sheik, or tribal leader.\footnote{See generally Heidi Osterhout, \textit{No More “Mad Money”: Salvaging the Commander’s Emergency Response Program} (2010).} Furthermore, only a small percentage of CERP funds go towards repairing environmental damage, and only in instances where required to address damage to pre-existing infrastructure.

Between 2004 and 2009, sixty-one percent of CERP funds were spent on the “transportation and storage” sector, mainly on road construction. Three percent was spent on water supply and basic sanitation. Even today, only an estimated twenty-seven percent of Afghan households have access to clean drinking water.\footnote{Hook \textit{supra} note 309.} Recently, the program largely fell out of favor
due to congressional concerns over lack of oversight, ever- higher approval authorities, and changing methods of providing aid to the Afghan government.\textsuperscript{320}

Complicating issues of environmental damage and remediation are the pre-existing conditions of countries subject to contingency operations. Many of Afghanistan’s environmental concerns pre-date the U.S. occupation; for example, even before Soviet tanks rolled across the Afghan border in 1979 widespread illegal harvesting and uncontrolled grazing severely depleted Afghanistan’s forests.\textsuperscript{321} Decades of conflict predating OEF deprived Afghanistan of a stable government, resulting in a severe lack of basic services such as clean drinking water and basic sanitation.\textsuperscript{322} An estimated ten to thirty million Soviet landmines dot the countryside, maiming an average of sixty-one victims a month while contaminating thousands of acres of arable land.\textsuperscript{323} Dust and vehicle emissions, combined with the use of open fires (often burning noxious materials) for heating and cooking have led to severe air pollution in many of Afghanistan’s largest cities.\textsuperscript{324} In the capital city of Kabul “waste dumps, chemicals, and open sewers” cause considerable public health risks even after billions in foreign aid spent on reconstruction.\textsuperscript{325}

Iraq faced similar challenges: under Saddam Hussein there were zero environmental laws or policies.\textsuperscript{326} Hussein often damaged the environment to punish his adversaries, as he did when drained 6,000 square miles of environmentally sensitive wetlands in southern Iraq in order to starve his enemies.\textsuperscript{327} U.S. efforts to mitigate its own environmental damage in Iraq were often

\begin{footnotes}
\item[320] See Osterhout supra note 318.
\item[321] REVIEW OF UNEP supra note 64 at 16.
\item[322] Id.
\item[324] Id.
\item[325] Id.
\item[326] Id.
\end{footnotes}
expensive and ineffective. In one instance U.S. soldiers struggled to clean an oil spill and contaminated soil around a single generator in an operations center in Basra being transferred to the Iraqi Army. The total cost to remove and dispose of the contaminated soil was almost $10,000, even though the damage pre-dated the site’s U.S. occupants.\textsuperscript{328} After spending over $6 trillion on the wars in Iraq and Afghanistan, enough to give every U.S. household $75,000, the U.S. taxpayer rightfully wants to know, “how much more is this going to cost?”\textsuperscript{329}

\textbf{Proposed Solutions}

In 2008 \textit{Green Warriors} concluded failure to plan for environmental contingencies and hazardous waste management substantially impacted current contingency operations.\textsuperscript{330} The study found “environmental considerations are not well incorporated into Army planning or operations in any phase of an operation” even though such considerations are vital to achieving U.S. aims in contingency operations, impact the health, safety, and welfare of U.S. servicemembers and local nationals alike, and can dramatically increase the cost of the operation if overlooked.\textsuperscript{331} Such failures are not only damaging to the U.S. mission and reputation: they are a betrayal of both our moral obligations as well as the people we claim to be defending. The following discusses what steps DoD can take to incorporate environmental planning into future contingency operations, while at the same time addressing lingering issues from our recent operations in Iraq and Afghanistan.

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{330} MOSHER ET. AL. supra note 15 at ii.
\item \textsuperscript{331} \textit{Id.} at iii and iv.
\end{itemize}
\end{footnotesize}
A primary concern highlighted by *Green Warriors* was the U.S. Army’s failure to inculcate environmental planning into Army culture or service norms.332 This weakness is endemic to all four services, which rightfully see their primary mission as “provid[ing] the military forces needed to deter war and to protect the security of our country.”333 The title of one article in *Joint Forces Quarterly* (JFQ), a publication read by many senior defense leaders, reveals the prevalent attitude about the environment and warfare: “Environmental Planning While Deployed: Mission Hindrance or Enhancement?” While the article overwhelmingly makes the case for incorporating environmental considerations in all types of operational planning, it also notes the widespread failure to do so at both the tactical and strategic levels.334 The same article discusses the abundance of doctrine and policy requiring military planners to “consider” environmental protection during contingency operations.335 However, as the cleanup issues associated with closing FOBs and ranges in Afghanistan indicate, environmental concerns are often an afterthought.

One solution suggested by *Green Warriors* is a “cultural change” related to how environmental issues are viewed during contingency operations.336 Fundamental to this transition is the incorporation of environmental planning into each phase of operational planning, from pre- to stabilizing and redeployment.337 Though critics may scoff and say environmental planning is incompatible with the concept of modern warfare, short of total war most U.S. military operations allow some latitude regarding targeting, basing, and other environmentally relevant decisions. Both the RAND study and the *Joint Forces Quarterly* article mention the

332 *Id.*
335 *Id.*
336 MOSHER ET. AL supra note 15 at xviii.
337 *Id.*

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failure of many battlefield commanders to include either environmental planning personnel or preventive medicine personnel when establishing FOB locations. Negative consequences resulting from these lapses include the complete dismantling and relocation of a FOB due to environmental hazards unaccounted for in mission planning. In another instance, failure to properly clean up hazardous waste led to a personnel sleeping area being hastily dismantled after it was discovered to lie on top a site of a 300 gallon fuel spill. Additionally, failure to account for everyday waste disposal contributed to the widespread and continuing use of burn pits that are now accused of sickening many contingency personnel.

Incorporating environmental planning into military culture may be easier than it first appears. An analogy may be drawn to the integration of legal counsel into target planning and acquisition in order to ensure compliance with international law, which is a relatively recent development. In 1983, military lawyers were not involved at all in the planning and rules of engagement for Operation Urgent Fury in Grenada in 1983; however, by 1991 the participation of Judge Advocates in targeting as well as other operational decisions became commonplace. Commanders found the “value added” of soldier-lawyers was the addition of recommendations and information regarding law of armed conflict that may not have been readily available to the commander otherwise, thereby adding legitimacy to targeting decisions. Though change has been slow, most savvy commanders would not consider planning an operation without the input of an operational lawyer. Therefore, cultural and operational change is possible.

338 Id., Racz supra note 334.
339 Mosher et. al. supra note 15 at 82.
341 Id. at 63-64, 99.
342 Id.
Furthermore, unlike operational law issues, which arise primarily in armed conflict and are therefore not part of a commander’s day-to-day existence, all commanders are familiar with meeting environmental requirements in garrison. Whether it be state and local hazardous waste permitting requirements, executive orders, or DoD Instructions, any commander assigned to a fixed military installation either in the U.S. or overseas is acquainted with the existence of and compliance with environmental regulations. Though standards may not be as high as that for the U.S. or overseas fixed installations, there is no excuse for not establishing a minimum standard for operations in contingency areas, particularly in long-term operations.

Deficiencies arise in part because of a legalistic “hand wave” mentality on the part of military leaders; often commanders see themselves as being “covered” as long as they include Annex L in their operations orders, regardless of practical application or intent to execute. While Annex L (Environmental Considerations) is included at the strategic level by combatant commands, by the time an operations order reaches tactical commander Annex L is either non-existent or so vague and overbroad as to be meaningless. Additionally, Green Warriors found operations orders, “focus primarily on the force-sustainment aspects of the environment and say little, if anything, about strategic aspects of environmental considerations or their importance in the post-conflict phases of an operation.” Failure to emphasize environmental issues and hold leaders accountable results in lackadaisical oversight and “many lessons from the Balkans and other contingency operations…being relearned in Iraq and Afghanistan.” Unless and until environmental issues are highlighted by leadership as part of a leader’s fundamental duties the

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343 Racz supra note 334 at 31.
344 MOSHER ET. AL supra note 15 at 68.
345 Id.
military will continue to have commanders making statements like, “We’re in the desert. What does it matter?”\(^{346}\)

Such nonchalance means commanders and soldiers often do not consider the second- and third-order effects of improper waste disposal. They view their FOB and its environs as a temporary home for a six, twelve, or fifteen month deployment, not as a homestead where farmers must cultivate crops and children walk to school. This bifurcation results in a lackadaisical attitude allowing firing ranges to be abandoned with UXO buried in the ground and POL products to be dumped on-site.

*Green Warriors* observes environmental conditions differ markedly in contingency operations than garrison environments.\(^{347}\) While servicemembers in the U.S. and abroad at fixed installations have robust support to deal with environmental issues, in a contingency environment the absence of environmental regulation often combines with a pre-existing severe degradation of the environment.\(^{348}\) These conditions are further complicated by the immediate danger of combat zones. However, managing the rigors of combat while at the same time taking environmental needs into consideration is not completely alien to combatant commanders; for example, in Annex L of the OIF operations order, the inherent conflict between “environmental compliance and military expediency” is addressed thusly:

> In the combat arena, environmental considerations will always be subordinated to the preservation of human life and force protection. However, this does not mean that the preservation of the natural environment may be ignored in the execution of orders generated from this Plan or in the development of branch, sequel, or subordinate plans.\(^{349}\)

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\(^{346}\)Kennedy, *supra* note 97.

\(^{347}\)MOSHER ET. AL. *supra* note 15.

\(^{348}\)Id.

\(^{349}\)MOSHER ET. AL. *supra* note 15 at 69, Annex L to USCENTCOM OPLAN 1003V, September 18, 2002, unclassified portions, p. L-1
Preservation of the environment does not have to come at the risk of mission failure. The excuse of “we’re not here that long” or “it was like that when we got here” falls short when current wars last over a decade. It stands to reason that with the architecture, expertise, and education already in place in garrison environments all that is left to do for the U.S. military is to 1) educate its leaders this is as much part of the process of going to war as other operational planning; 2) have real and lasting consequences for those who neglect to do so; 3) ensure environmental experts are integrated into the operations order process all the way from the strategic to the tactical level so Annex L at the tactical level is both meaningful and practical; 4) change existing doctrine, policies, and regulations to include minimum environmental standards for contingency operations, including post-operative clean-up, particularly including UXO disposal; 5) allocating funds upfront to provide for post-conflict hazardous waste clean-up; and 6) training contracting officers (KOs) and contracting officer representatives (CORs) to monitor the use of contractors in hazardous waste disposal and clean-up.

As the recent efforts to address military sexual assault and suicide demonstrate, once military leaders turn their attention to an issue, subordinate leaders generally fall in line. The same amounts of expertise and resources can also be devoted to environmental stewardship. By integrating care for the environment into initial entry military training and reinforcing it at professional schools throughout a servicemember’s career the military can begin to change its focus from remediation to prevention. Forcing commanders to allocate part of their budget to remediate environmental damage caused by U.S. military operations will compel commanders to account for environmental damage when considering the costs and benefits of an operation.

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Putting teeth into regulations by creating baseline standards and establishing punitive measures should commanders fall short would end the short-term, “not my problem” mentality that accompanies deployments lasting between thirty days and fifteen months. It would mean commanders assuming command of a FOB or an area of responsibility (AO) would compel their predecessors to ensure all lingering environmental hazards are addressed; it would also force commanders occupying an area for the first time to carefully survey and account for all pre-existing environmental hazards so their successors could not blame them for preexisting conditions. Part of determining whether or not an area is “secure” enough to turn over to local national forces should include an assessment UXO and possible DU hazards left behind by U.S. forces, combined with clean-up if necessary; it is ludicrous to consider an area “safe” enough for withdrawal of military personnel if children are not safe from leftover U.S. munitions. Monitoring contractors for actual adherence to environmental standards contained in military contracts and fining those who fail to do so will oblige contractors to care as leaders do.

More broadly speaking, the U.S. must re-establish moral leadership by addressing environmental concerns caused by the deployment and operations of its military. A *Foreign Affairs* magazine article observes one of the many negative consequences of wars in Iraq and Afghanistan, include “alienating the rest of the world through assertions of infallibility and demands obedience”\(^{352}\) which have damaged American credibility and stated foreign policy objectives. The critical issue for how history judges the U.S. wars in Iraq and Afghanistan will be the conditions we leave behind for the citizens forced to live there. Despite the U.S.’s unwillingness and inability to force Iraqi and Afghan citizens to choose among many competing political factions, it does have the ability and moral obligation to clean its own UXO, DU, range

detritus, and the hazardous waste left by its own personnel. If the U.S. cannot leave a legacy of peace and democracy, let it strive to leave these places no worse than it found them.

While it may be too late to address the issue in Iraq, the U.S. still has an opportunity to clean up the bases it occupied in Afghanistan. Even if the security situation does not permit U.S. personnel to clear those areas of UXO, at a minimum the U.S has an obligation to provide funds to NGOs, contractors, or the Afghan government to ensure these areas are safe for civilians. The U.S. and its allies continue to work on cluster munitions with lower failure rates combined with self-destruct mechanisms to address lingering hazards, but these efforts are too far in the future for Afghan and Iraqi civilians suffering in the present.\footnote{Andrew Feickert & Paul K. Kerr, Cluster Munitions: Background and Issues for Congress 5, Apr. 29, 2014 available at http://fas.org/sgp/crs/weapons/RS22907.pdf.} Going forward, accurate mapping of areas hit by U.S. ordnance and planning for eventual clean-up of duds and DU hazards should be a cornerstone of all contingency operations planning short of total war.

Furthermore, the U.S. must provide some practical means of recourse for those affected by its actions. Recent U.S. military counterinsurgency doctrine states “securing the civilian” should be as important as “destroying the enemy.”\footnote{See generally U.S. Dep’t of Army, Field Manual 3-24, Counterinsurgency (Dec. 15, 2006).} Gaining civilian support has become a strategic goal rather than an offshoot of U.S. military operations.\footnote{Id.} Therefore, a fundamental part of ensuring a positive U.S. legacy is to provide a forum and a means to address environmental harm caused by U.S. military activities. A natural starting place would be the expansion of the FCA to include both combat and noncombat activity caused by a negligent or wrongful act and omission, caused by U.S. service members, civilians, and contractors.\footnote{See generally Jonathan Tracy, Compensating Civilian Casualties “I am Sorry for Your Loss, and I Wish You Well in a Free Iraq, Carr Center for Human Rights Policy and Campaign for Innocent Victims in Conflict} Such an expansion would be in line with COIN strategy of winning hearts and minds in spite of the
inevitable collateral damage of combat. The architecture for adjudicating claims up to $10,000 made by local nationals for noncombat claims already exists. Rather than “aiding the enemy,” dropping the combat exclusion for FCA payments while maintaining the adjudicative architecture would ensure innocent civilians are not turned towards the enemy’s cause due to environmental damage and destruction caused by U.S. forces. Linking such claims within reason to a battlefield commander’s budget or evaluation would further incentivize military leaders to avoid environmental damage when they are able to, and carefully consider the costs and benefits when they are not.

For far too long the U.S. military has shrouded its environmental destruction in terms of national security and exigent circumstances. Yet at the same time, President Obama’s National Security Strategy (NSS) calls for American leadership in the environmental arena, calling climate change a critical threat to our own national security. The NSS declares “a key source of American leadership throughout our history has been enlightened self-interest.” The same principles should apply regarding preventing, mitigating, and remediating U.S. military environmental damage in contingency operations areas. It is in U.S. national security interests to establish and adhere to baseline standards in contingency operations, as well as provide a method of recourse when it fails to meet these standards. More than “enlightened self-interest,” more than the principle of “if you break it you buy it,” cleaning up our own mess is simply the right thing to do.

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358 Id. at 3.