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"Environment" in the 21st Century, International Law, and the Consequences of Armed Conflict

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I. Introduction

A primary motivation for including protection of environment and natural resources in the law of armed conflict and post-conflict legal rules is to establish productive, peaceful societies. Natural resources and environmental conditions influence a country's ability to provide security, deliver basic services, restore its economy and livelihoods and rebuild governance—four peacebuilding objectives.[1] The principle of environmental integrity expresses a complex set of concepts that form the human view of a healthy, intact natural system that can support these processes. It reflects norms that have deep roots in the law of war, post-conflict reparations processes, and current state practice.[2] In my analysis of the ENMOD, Additional Protocol I and Treaty of Rome criteria for environmental harm (widespread, long-term and/or severe), I also sought to explain why they were inappropriate and to define "environmental integrity" more precisely. This present research aims to put the concept of environmental integrity into context with some important developments in ecology, conservation biology and natural resource management to advance the project of articulating legal principles that can be applied by military actors, reparations bodies, governments and others engaged in peacebuilding. These ideas apply as well to transitional justice measures, international criminal law proceedings, investment and development aid (particularly major infrastructure projects and development of high-value natural resources), peacekeeping deployments, and managing the toxic remnants of war.

The image that most of us have when we think of environmental integrity is some Edenic vision of pristine nature – quiet forests, sparkling rivers, silvery deserts. If we knew a city before it was bombed, we will think of it as we knew it. This is also the image that is conjured by the touchstone standard for reparations, stated by the Permanent Court of International Justice: "reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed."[3] From the perspective of ecology, it is an impossible image, as artificial as the restoration of Warsaw,[4] although it is strongly echoed in early twentieth century thinking about protecting nature and culture[5] by establishing national parks.[6]

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[1] D. Jensen, S. Lonergan. 2012. Placing Environment and natural resource risks, impacts, and opportunities on the post-conflict peacebuilding agenda. In Assessing and Restoring Natural Resources in Post-Conflict Peacebuilding, ed. D. Jensen and S. Lonergan. London: Earthscan, 2, 7.

[2] C.R. Payne, *The Norm of Environmental Integrity in Post-Conflict Legal Regimes, in JUS POST BELLUM* (Carsten Stahn, Jennifer S. Easterday, and Jens Iverson, eds., Oxford University Press, 2014).

[3] *Case Concerning the Factory at Chorzów (Germany v. Poland)* (Merits) PCIJ Rep Series A No. 17, 47 (1928).

[4] UNESCO, World Heritage List: "During the Warsaw Uprising in August 1944, more than 85% of Warsaw's historic centre was destroyed by Nazi troops. After the war, a five-year reconstruction campaign by its citizens

Appreciation of the lessons of ecology and related disciplines has not fully penetrated *jus post bellum.* Legal traditions persist into the present, defining harms in terms of private property, infrastructure, or iconic landscape elements. This is also how policy makers tend to perceive the environment and natural resources. For example, on the rare occasions when reparations are sought, claims are more likely to resemble Ethiopia's claim seeking compensation for loss of gum Arabic and resin plants before the Eritrea-Ethiopia Claims Commission[7] than Jordan's claim to the UN Compensation Commission for "remediation of its rangelands, loss of forage production in its rangelands, damage to rangeland wildlife habitats, loss of wildlife, and disruption of a captive-breeding programme for two endangered species (the Arabian oryx and the sand gazelle)," resulting from Iraq's 1990 invasion and occupation of Kuwait.[8] That is, states still perceive their environmental damage in terms of market-priced resources like crops and overlook pure environmental damage, such as a damaged ecosystem, which is likely to be more crucial to their long-term recovery from the conflict.[9]

To clarify the analysis of environment and natural resources in *jus post bellum*, two concepts are worthy of attention: coupled human and natural systems and change in the environment. National parks prove to be a good laboratory to observe the effects of perturbations on natural systems, management interventions to restore pre-existing conditions, and, ultimately, to return to the question of what concepts like "natural," "pristine," "pre-existing conditions" and "integrity" mean. So, although Yosemite and Yellowstone may seem remote from the scenes of conflict that preoccupy us, I will use the work of their

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resulted in today's meticulous restoration of the Old Town, with its churches, palaces and market-place. It is an outstanding example of a near-total reconstruction of a span of history covering the 13th to the 20th century." http://whc.unesco.org/en/list/30

[5] The inclusion of culture as an element of the environment is supported by such diverse organization as the International Union for Conservation of Nature in its definition of a protected area ("an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means." International Union for the Conservation of Nature. 2008. Guidelines for applying protected area management categories. IUCN, Gland, Switzerland.) and the US Army ("environmental considerations, to include the protection and the conservation of natural and cultural resources," Department of the Army, Environmental Considerations, FM 3-34.5/MCRP 4-11B (2010), 1-1)

[6] The mandate of the US National Park Service, set forth in its organic statute, is to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." 16 U.S.C. l 2 3, and 4), Act of Aug. 25 1916 (39 Stat. 535) and amendments thereto, section 1.

[7] Sean D. Murphy, Won Kidane, and Thomas R. Snider, LITIGATING WAR: ARBITRATION OF CIVIL INJURY BY THE ERITREA-ETHIOPIA CLAIMS COMMISSION (Oxford University Press 2013) (n. 26) 146.

[8] Report and recommendations made by the Panel of Commissioners concerning the fifth instalment of 'F4' claims" (30 June 2005) UN Doc. S/AC.26/2005/10, para 353.

[9] Reparations for environmental damage are often resolved by reducing the harm to a monetary value, which can then be paid to the public trustee for the damaged resource. This is practical, but misleading if the international community comes to define environmental value in financial terms. A team of economists, whose work recently valued all ecosystem services provided by the planet, argue that "[m]any ecosystem services are public goods or the product of common assets that cannot (or should not) be privatized … [their] value in monetary units is an estimate of their benefits to society expressed in units that communicate with a broad audience." Robert Costanza, Rudolf de Groot, Paul Sutton, Sander van der Ploeg, Sharolyn J. Anderson, Ida Kubiszewski, Stephen Farber, R. Kerry Turner, Changes in the global value of ecosystem services, Global Environmental Change 26 (2014) 152–158, 157 ("the estimate for the total global ecosystem services in 2011 is $125 trillion/yr (assuming updated unit values and changes to biome areas) and $145 trillion/yr (assuming only unit values changed), both in 2007 $US. From this we estimated the loss of eco-services from 1997 to 2011 due to land use change at $4.3–20.2 trillion/yr, depending on which unit values are used.")

scientists and managers to discuss fundamental empirical concepts that are relevant to peacebuilding and environmental damage in *jus post bellum.*[10]

II.

In international law, concern for the environment is framed almost entirely in anthropocentric terms.[11] However, human interests in environmental integrity are not uniform, and concern for environmental integrity functions within the context of earth systems according to laws that are independent of human interests and rules. For example, remediation of conflict-related pollution protects public health; demining allows safe public access to agricultural land; and restoration of natural resources and ecosystems can be essential to recovery of resource-based livelihoods.[12] The necessities of life figure centrally in humanitarian law: water and food, freedom from toxics ("poisons"). These are followed closely by access to means of economic activity and cultural objects and places.

The *jus post bellum* is intended to restore human society after traumatic events. Although the law of armed conflict permits violations of normal conduct, it draws a line at the place where violence goes too far for a community to reassert peace. Included in the conditions for human society to thrive are nature and culture. To understand the prohibition, it is first necessary to picture those peacetime conditions. The extent to which humans have historically managed the peacetime environment and the challenge of providing stable, familiar conditions provide important insights into the vulnerabilities that law must protect.

This section describes the current scientific understanding of change, the coupled human and natural system, and management guidelines that incorporate these concepts in a way that may be integrated into *jus post bellum.*[13]

A. CHANGE

[10] Although my references are to US parks, the scientists and managers participate in an international community of protected area managers. According to the International Union for Conservation of Nature, "roughly a tenth of the world's land surface is under some form of protected area." International Union for the Conservation of Nature. 2008. Guidelines for applying protected area management categories. IUCN, Gland, Switzerland.

[11] For example, Anne Peters argues, with regard to recent UN Security Council resolutions sanctioning wildlife poachers in two conflict zones, "… if human needs and interests were not in the foreground, the Security Council would not have taken any robust action at all. … In the long run, however, an ecocentric approach to peace and security seems more appropriate to guarantee a sustainable peace for all living beings on earth." *EJIL Reflection*

[12] D. Jensen, S. Lonergan. 2012. Placing Environment and natural resource risks, impacts, and opportunities on the post-conflict peacebuilding agenda. In Assessing and Restoring Natural Resources in Post-Conflict Peacebuilding, ed. D. Jensen and S. Lonergan. London: Earthscan,, 8.

[13] Gregory Aplet has addressed this from multiple perspectives: Aplet, G.H. and D.N. Cole, The trouble with naturalness: rethinking park and wilderness goals, Ch. 2 in, Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change (Cole, D.N. and L. Yung (eds.) Island Press, Covelo, CA, 2010); Aplet, G., and J. Gallo, Applying Climate Adaptation Concepts to the Landscape Scale: Examples from the Sierra and Stanislaus National Forests (The Wilderness Society, Washington, DC, 2012); Aplet, G., On the nature of wildness: exploring what wilderness really protects, University of Denver Law Review 76:347-367 (1999); Other authors who have considered this question include Ulrich Heink, Robert Bartz & Ingo Kowarik, How Useful are the Concepts of Familiarity, Biological Integrity, and Ecosystem Health for Evaluating
Damages by GM Crops? J Agric Environ Ethics (2012) 25:3–17.

Ecological systems were previously believed to be relatively stable, and to tend toward static "climax" states, a belief that subsequent research shattered. So, the author of a classic study wrote "the climax forest … is the final and permanent vegetation stage, toward the establishment of which all other plant societies are successive steps."[14] However, since at least the 1960s, scientists have observed that particular ecosystems change over time with and without human intervention.[15] For example, fire and drought are natural perturbations that occur with varying frequency, and long-term pre-industrial changes in climate have caused observable longer-term shifts in ecosystems.[16]

In a static world, concepts of preservation and conservation would have objective meaning and legal standards could be defined to maintain those conditions. The example of national parks illustrates the tension between the image of a natural world and the reality of the modern world. Parks, after all, represent the most prized places identified by nations around the world.[17] An influential advisory document prepared for the US National Park Service (NPS), the Leopold Report, recommended that,

> As a primary goal … the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man [*sic*]. A national park should represent a vignette of primitive America.[18]

The Leopold Report proposed active management techniques to reestablish and then to maintain that static view of the ecosystems that were perceived to be original, or "natural."

The 2012 review that the National Park Service commissioned a half-century after the Leopold Report reflects a very different view of the world, one which includes stewardship for "continuous change that is not yet fully understood, in order to preserve ecological integrity and cultural and historical authenticity."[19] While weather and ecological functions are only partially understood, the report also records a host of new anthropogenic changes added to the conditions that shaped the park lands over hundreds and thousands of years: "biodiversity loss, climate change, habitat fragmentation, land use change, groundwater removal, invasive species, overdevelopment and air, noise, and light pollution," and cultural and socioeconomic changes in the people who interact with the land.[20] These are changes that are predicted to affect the environment everywhere, sometimes to levels that risk passing a tipping point into system collapse.[21]

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[14] Cooper (1913), quoted in Daniel B. Botkin and Matthew J. Sobel, Stability in Time-Varying Ecosystems, The American Naturalist, Vol. 109, No. 970 (Nov. - Dec., 1975), pp. 625-646. [Cooper, W. S. 1913. The climax forest of Isle Royale, Lake Superior, and its development. Bot. Gaz. 55:1-44, 115-140, 189-234.]
[15] Botkin & Sobel (1975) 628-629.
[16] Botkin & Sobel (1975) 626-629.
[17] The 1972 Convention concerning the Protection of the World Cultural and Natural Heritage recognizes some sites as "parts of the cultural or natural heritage [that] are of outstanding interest and therefore need to be preserved as part of the world heritage of mankind as a whole."
[18] Advisory Board on Wildlife Management appointed by Secretary of the Interior Udall, Wildlife Management in the National Parks: The Leopold Report (March 4, 1963), available at http://www.cr.nps.gov/history/online_books/leopold/leopold4.htm
[19] NPS 2012 at 11.
[20] NPS 2012 at 4-5.
[21] Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, III, E. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C. A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. K. Snyder,

The concept that ecosystems are inherently changing alters the approach to management and puts in question traditional management techniques. Drought is a classic unplanned-for change that impacted the Iraqi Marshes restoration project discussed below.

B. COUPLED HUMAN AND NATURAL SYSTEMS AND THE "PRISTINE MYTH"

The 2012 NPS report conceptualized humans as participants in ecosystems – a very different vision from the pre-contact[22] conditions imagined by the Leopold Report. The 2012 report advised that cultural and natural resources cannot be separated and must be managed together; it used the American Bison as an example of a resource that is both ecologically important in maintaining grassland ecosystems and culturally significant.[23] The report defines *ecological* integrity as "the quality of ecosystems that are largely self-sustaining and self-regulating. Such ecosystems may possess complete food webs, a full complement of native animal and plant species maintaining their populations, and naturally functioning ecological processes such as predation, nutrient cycling, disturbance and recovery, succession, and energy flow."[24] This image of the human-nature relationship resulted from decades of research that revealed human influences on what had appeared to be a virtually untouched continent.

It will be obvious that in Europe the human imprint is everywhere and "pristine" environments are essentially nonexistent; it is less obvious but equally true in places like the pre-contact Americas. Just as idealized images of climax ecosystems reflect limited knowledge and short-term observations, the "pristine myth" has been refuted by evidence that Native Americans altered their environments to enrich the species, location and life-stage of plants and animals that they used for food, shelter and goods.[25] There is evidence that fire and cultural practices have shaped Amazonian forests, the Great Plains, and the

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R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and J. Foley. 2009. Planetary boundaries: exploring the safe operating space for humanity. Ecology and Society 14(2): 32. [online] URL: http://www.ecologyandsociety.org/vol14/iss2/art32/. The boundaries are: climate change (CO2 concentration in the atmosphere <350 ppm and/or a maximum change of +1 W m-2 in radiative forcing); ocean acidification (mean surface seawater saturation state with respect to aragonite 80% of pre-industrial levels); stratospheric ozone (<5% reduction in O3 concentration from pre-industrial level of 290 Dobson Units); biogeochemical nitrogen (N) cycle (limit industrial and agricultural fixation of N2 to 35 Tg N yr-1) and phosphorus (P) cycle (annual P inflow to oceans not to exceed 10 times the natural background weathering of P); global freshwater use (<4000 km3 yr-1 of consumptive use of runoff resources); land system change (<15% of the ice-free land surface under cropland); the rate at which biological diversity is lost (annual rate of <10 extinctions per million species); chemical pollution (no boundary determined yet) and atmospheric aerosol loading (no boundary determined yet).

[22] "Pre-contact" refers to the period before Europeans contacted the peoples of the Americas.

[23] National Park System Advisory Board Science Committee, Revisiting Leopold: Resource Stewardship in the National Parks (2012) 9. M. Kat Anderson argues that "many of the classic landscapes of our national parks … were shaped by the unremitting labor of generations of indigenous peoples," that they are now changing because the cultural and natural processes that shaped them are missing, and that restoration will not work unless indigenous practices are reintroduced. M. Kat Anderson & Michael G. Barbour, Simulated Indigenous Management: A New Model for Ecological Restoration in National Parks, Ecological Restoration 21:4 (Dec. 2003) 270..

[24] NPS 2012 at 12.

[25] M. Kat Anderson, The Fire, Pruning, and Coppice Management of Temperate Ecosystems for Basketry Material by California Indian Tribes, Human Eco logy, Vol. 27, No. 1, 1999, 79-113. William M. Denevan, The Pristine Myth: The Landscape of the Americas in 1492, Annals of the Association of American Geographers (1992) 369-385. Sep92, Vol. 82 Issue 3

Pantanal to suit the human inhabitants to such an extent that Denevan says "There are no virgin tropical forests today, nor were there in 1492.[26]

Coupled human and natural systems, like those observed in these examples, are now studied in different settings, including cities, rural areas, developed and developing countries.[27] They can be defined as "integrated systems in which people interact with natural components."[28] A synthesis study of six case studies observed several common features: "nonlinear dynamics with thresholds, reciprocal feedback loops, time lags, resilience, heterogeneity, and surprises … past couplings have legacy effects on present conditions and future possibilities."[29]

This realization led land managers to the conclusion that desirable ecological conditions that seemed to characterize the Americas have to be actively managed,[30] an enterprise which has its own problems when applied to natural or cultural landscapes. To explain the problem, the ecologist David Ehrenfeld invoked von Neumann and Morgenstern's theorem demonstrating the mathematical impossibility of maximizing more than one variable at a time in an interlinked system.[31] In other words, it might be possible to manage a forest to maximize the deer population, but the results (empirically demonstrated) are likely to reduce or extirpate populations of other species. There is no general rule to solve the paradox that this creates, that there is no "natural" condition; that there are preferable conditions; that management is necessary to maintain them; and that managing complex natural systems[32] is prone to failure.

In a typical post-conflict situation, humanitarian efforts to provide potable water and fuel for human survivors may have widespread negative consequences for key components of the ecosystems they will rely on in the future – fisheries, agricultural land, forests, and so on.

C. GOALS

The pristine myth dissipates in light of the knowledge that environmental conditions are and have been shaped by natural forces and human intention. The 2012 NPS report argued that essential characteristics and processes of healthy ecosystems are equally important management goals as "observable features of iconic species and grand land- and seascapes."[33] One of these is system resilience.

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[26] Denevan (1992) 375.
[27] Jianguo Liu, Thomas Dietz, Stephen R. Carpenter, Marina Alberti, Carl Folke, Emilio Moran, Alice N. Pell, Peter Deadman, Timothy Kratz, Jane Lubchenco, Elinor Ostrom, Zhiyun Ouyang, William Provencher, Charles L. Redman, Stephen H. Schneider, William W. Taylor, Complexity of Coupled Human and Natural Systems, 317 Science 1513-1517 (2007).
[28] Liu et al, 1513.
[29] Liu et al., 1513.
[30] M. Kat Anderson & Michael G. Barbour, Simulated Indigenous Management: A New Model for Ecological Restoration in National Parks, Ecological Restoration 21:4 (2003) 269-277.
[31] David Ehrenfeld, The Management of Diversity in Ecology, Economics, Ethics: The Broken Circle (F. H. Bormann & S.R. Kellert, eds. New Haven: Yale University Press, 1991) 26-39, 30.
[32] Note that "complex system" is a term of art in systems theory. Systems may be simple, complicated, complex, or chaotic. In complex systems, "there is no immediately apparent relationship between cause and effect, and the way forward is determined based on emerging patterns." Snowden, D. & Boone, M. 2007. "A Leader's Framework for Decision Making." Harvard Business Review. November 2007: 69-76, 72. *See also*, C. R. Payne, Balancing the Risks: Choosing Climate Alternatives, IOP Conf. Ser.: Earth Envtl. Sci. 8 (2009) at notes 53-57.
[33] NPS 2012 at 10.

System resilience can be analyzed in terms of "animal movements, gene flow, and response to cycles of natural disturbance"[34] or other features like watersheds and airsheds. For seasonally mobile migratory species and other species that move in response to short- and long-term system changes (including armed conflict), life-cycle stewardship and collaborative resources management are needed to achieve system resilience.

Lonergan makes this point in his analysis of the stop and start restoration of the Iraqi Marshes (perhaps the original Garden of Eden).[35] The marshes were drained by Saddam Hussein to quash political dissidents in the region. After the 2003 invasion forced Hussein from power, an international coalition contributed funds, technical support, and political assistance to restore the marshes. Fed by the Tigris and Euphrates Rivers, the marshes' ultimate health would depend on cooperation with the upper riparians – Syria and Turkey – and with neighboring Iran. Natural drought conditions, exacerbated by the failure of collaborative management efforts with Turkey and Iran, have led to inadequate water supply. Lonergan predicts that climate change will worsen this situation. He also finds that in some areas the marshes had lost so much ecosystem function that "the marshes' resiliency might be exhausted," although other areas began to recover naturally once water was restored. In his view, though the Convention on Wetlands of International Importance (the Ramsar Convention) could provide a useful institutional structure for the riparian states to cooperate, it lacked incentives to force them to work together. He believes that the Iraqi Marsh restoration was not a peacebuilding success.

III. Lessons for *Jus post Bellum*

The laboratory of the park system offers several lessons for those designing post-conflict interventions and legal regimes.

1. Account for change.

The role of change seems most relevant to future-oriented post-conflict activities, such as remedies for environmental harms, economic development projects and environmental restoration efforts. The lessons from studies of ecosystem management suggest that change at multiple scales, resulting from both natural and human causes, means that active management of ecosystem characteristics replaces fixed management of a historic condition. This might lead to difficult choices, which will require thoughtful analysis of normative and empirical questions. For example, if sea level rise and storm surge are predicted to inundate a conflict-damaged wetland in the next ten years, how should a legal right to restoration be implemented? How should local community interests in restoring preexisting conditions be weighed in such a scenario?

2. Consider how human activities and environment function as an interactive system, do not focus exclusively on one element.

The implication for judicial processes, civil or criminal, is to take account of the coupled human and natural system. Measures would include: at the outset, when soliciting claims, to inform potential

[34] NPS 2012 at 9.
[35] Steve Lonergan, Ecological Restoration and Peacebuilding: The Case of the Iraqi Marshes in Assessing and Restoring Natural Resources in Post---Conflict Peacebuilding (D. Jensen & S. Lonergan, London: Earthscan 2012).

claimants that systemic harmful impacts are compensable; to define liability and causation in terms that account for interactions within the system; to obtain expert assistance to evaluate complex claims in light of current scientific knowledge; and to consider the systemic effects of remedies provided.[36]

For interventions in the immediate post-conflict period, like supplying water and fuel to refugees, information about coupled systems will be limited and certain priorities will predominate. However, best practices can be incorporated to minimize unintended harm.[37]

For long-term investments by international aid donors, private investors or governments, safeguards established for similar activities during peacetime may be used to evaluate and control for collateral damage. For example, environmental impact assessment is a common practice used to discern this kind of information. It is widespread in domestic legal regimes and the International Court of Justice[38] and Law of the Sea Tribunal[39] have recognized environmental impact assessment as an international obligation in cases of potential significant transboundary harm. However, armed conflict can be used as a pretext to suspend peacetime laws, and urgency to initiate post-conflict projects may encourage accelerated approvals.[40] It is important that military forces and investors alike recognize the continuing applicability of environmental safeguards.

3. Recognize that armed conflict constitutes a severe disruption to the environment and that recovery to the conditions before the conflict may not be possible or desirable.

A preferred historical condition may not be recoverable. As *jus post bellum* rules evolve, new criteria may be used, including:

- System resilience;
- Regional, including transboundary, analysis and potential for collaborative management;
- Biodiversity and evolutionary potential;

Expanding the focus of law from single concerns – gold mining, refugee water supply, a fishery – to complex systems complicates the task of post-conflict activities but is likely to make the result more robust.

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[36] For example, Kuwait sought compensation to excavate and remove the asphalt-like layer of oil residue left on its desert surface from the oil well fires set by retreating Iraqi troops. Scientific experts advised that excavation of the tarcrete layers (although it would have restored the visual appearance of the sites) could reduce the success of revegetation efforts. "Report and recommendations made by the Panel of Commissioners concerning the third instalment of 'F4' claims" (18 December 2003) UN Doc. S/AC.26/2003/31, 47.

[37] Annica Waleij, Timothy Bosetti, Russ Doran, and Birgitta Liljedahl, "Environmental Stewardship in Peace Operations: The Role of the Military" in Carl Bruch, William Carroll Muffet, and Sandra S. Nichols (eds), Strengthening Post-Conflict Peacebuilding through Natural Resource Management, Vol. 6: Governance, Natural Resources, and Post-Conflict Peacebuilding (forthcoming).

[38] *Pulp Mills on the River Uruguay (Argentina v. Uruguay)* Merits, Judgment, I.C.J. Reports 2010.

[39] *Seabed Disputes Chamber of the Int'l Trib. for the Law of the Sea, Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area,* Advisory Opinion, (2011), paras 145-148.

[40] Jensen & Lonergan at 8.

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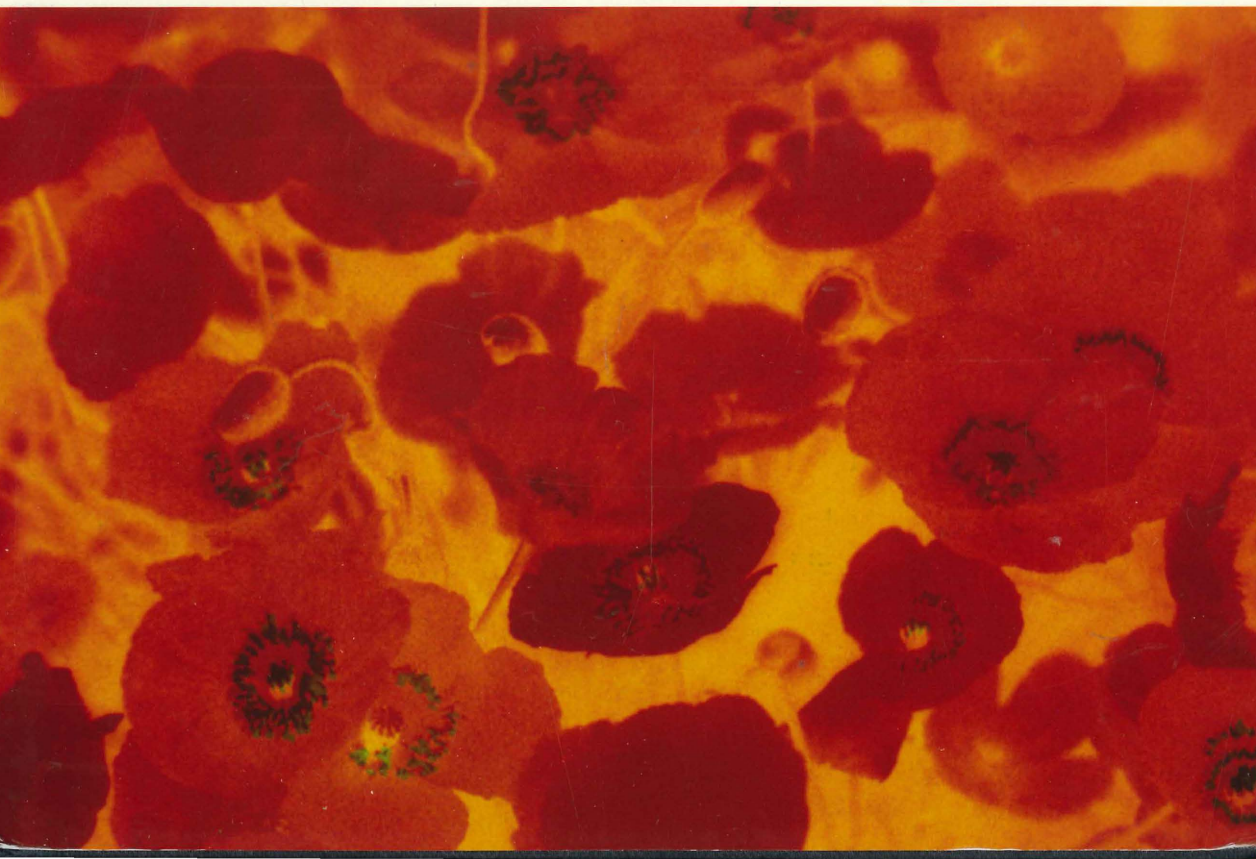

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The Norm of Environmental Integrity in Post-Conflict Legal Regimes

*Cymie R. Payne**

I. Introduction

Discussion of post-conflict legal regimes—*jus post bellum*—must include measures for the protection and rehabilitation of the environment as well as international humanitarian law, human rights, and international criminal law. A standard approach to the topic would be to review the literature on theories of *jus post bellum*, and to discuss them with regard to relevant environmental norms and examples. However, the environmental norm has not been well-defined. This chapter defines the environmental norm and then discusses it in relation to current theories of post-conflict law, particularly those put forward by other contributors to this book. It considers whether an environmental integrity norm may provide support for a theory of *jus post bellum*, and how *jus post bellum* theory advances environmental integrity.

A goal that environmental integrity shares with human rights and humanitarian law is prevention—or at least minimization—of harm. The nature of harm to the environment inflicted by armed conflict can be astonishingly varied. Industrial facilities may be damaged intentionally or incidentally; military vehicles cause damage to the earth similar to off-road vehicles; spent and unused ordnance is toxic, flammable, and explosive and is so persistent that remnants from the Second World War are still found in European farm fields; refugees overburden water supplies, cut forests, and overgraze in their host countries; troops leave behind landfills with sanitary, medical, and toxic waste. Crops and livestock are destroyed, water and air pollution are caused by any number of military activities. To be effective, legal measures to address these harms need to recognize biological and physical systems, rather than focusing on instances of private property or infrastructure; rapid response to assess, mitigate, and remediate are also of the essence.

Traditionally, the law of war recognized water and cultural sites for special protection. The doctrine of state responsibility provided for reparations, with a "you broke it, you fix it" approach to civil liability where a belligerent breached obligations under *jus ad bellum* or *jus in bello*. International criminal and human rights law had little to say on the topic, until recently. A modern understanding of the underlying concern requires a more coherent norm of environmental integrity and attention to its distinctive characteristics and particular problems. As the International Court of Justice (ICJ) said in its

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Nuclear Weapons Advisory Opinion, "the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn."[1] The rapporteur for the International Law Commission (ILC) on "Protection of the environment in relation to armed conflicts," a topic adopted in 2013, noted that damage to the environment is of particular concern because it may persist long after the conflict and may prevent effective rebuilding.[2] Moreover, the increasing scale and frequency of insults to the environment are eroding the ecosystems that support human life. By articulating a so-far neglected norm of environmental integrity, this concern can be more effectively integrated into theory and practice.

The post-conflict phase of the war-peace continuum includes many applications of law that exemplify the diversity described in some accounts of post-conflict peacebuilding.[3] Reparations programs are prominent elements of post-conflict legal responses, and where they address environmental harms they are especially useful in understanding the content of a norm because reparations focus on specific facts of damaged environment, they reveal the scope of harm that conflict causes and thus highlight gaps in the formal legal regime of *jus in bello*. The law of war was developed at an early stage of modern environmental science and law, with an inadequate appreciation of the extent and type of harm suffered by the environment during armed conflict.

In addition to measures that will lead to environmental restoration, the reestablishment of pollution management and regulation is an important part of the reestablishment (or establishment) of the rule of law in post-conflict societies. An aspect of environmental regulation that is more specific to the *jus post bellum* period, is the role of law in requiring military forces—whether foreign or domestic, peacekeeping, occupying or demobilizing—to practice better environmental management of their operations.[4]

Although this chapter focuses on liability for the harm done to the environment in waging those wars and strengthening the environmental integrity norms that already exist in peacetime law and, implicitly, in the law of war, it should be mentioned that conflicts are often about control of natural resources, particularly high-value natural resources like oil, other minerals, and timber. Recent wars in Liberia,[5] the Democratic Republic of Congo,[6] and Iraq were fought over "conflict resources." The growing scarcity of water causes defense analysts to evaluate whether water wars may become a

[1] *Legality of the Threat or Use of Nuclear Weapons* (Advisory Opinion) [1996] ICJ Rep. 226, para. 29 (*Nuclear Weapons Advisory Opinion*).

[2] ILC, "Report of the International Law Commission on the Work of its 63rd Session Annex E" (26 April–3 June and 4 July–12 August 2011) UN Doc. A/66/10, 351, 351.

[3] Carsten Stahn, "'*Jus ad Bellum*,' '*Jus in Bello*'...*Jus Post Bellum*?—Rethinking the Conception of the Law of Armed Conflict" (2007) 17 *European Journal of International Law* 921, 941.

[4] For example, military waste that is incinerated in open pits may cause toxic exposures to humans and the environment. Institute of Medicine (IOM), *Long-term Health Consequences of Exposure to Burn Pits in Iraq and Afghanistan* (The National Academies Press 2011).

[5] Republic of Liberia, Truth and Reconciliation Commission, "Economic Crimes and the Conflict, Exploitation and Abuse" (vol. 3, Appendices, Title III, 2009) para. 8(ii) (including illegal mining, natural resource extraction, and toxic waste dumping as economic crimes, along with such crimes as sexual slavery and arms dealing) <http://trcofliberia.org/resources/reports/final/volume-three-3_layout-1.pdf> (accessed 23 July 2013).

[6] Republic of Uganda, Ministry of Foreign Affairs, "Final Report of the Judicial Commission of Inquiry into Allegations of Illegal Exploitation of Natural Resources and Other Forms of Wealth in the Democratic Republic of the Congo 2001" (Republic of Uganda, Ministry of Foreign Affairs 2002).

source of armed conflict.[7] Work in this area is directed at post-conflict governance measures to ensure that issues like territorial control and natural resource extraction contracts are managed to eliminate corruption, violence, and the seeds of future conflict,[8] which also falls into the purview of *jus post bellum*.

As discussed in other chapters, legal division of the three phases of armed conflict—beginning and conducting a war, and its aftermath—is blurred.[9] For instance, reparations commissions are typically established in the *post bellum*, but they address the legality of actions leading to war and fighting a war and reparations can be practiced while conflict is ongoing. Restoration of the environment, including natural resources, ecosystem services, and cultural heritage will generally take place once hot conflict has ceased. But environmental principles require all parties to mitigate environmental harm to the extent possible even during conflict. Third parties to the conflict may decide to assist with abatement and prevention of environmental and public health damage as a matter of environmental solidarity.[10] Environmental reparations may extend decades beyond the end of the conflict, involving cooperation between the former enemies.[11]

While these efforts imply that there is a norm of environmental integrity, it is poorly defined and insufficiently integrated into historical and contemporary notions of *jus post bellum*. Although the impacts of war on the environment are severe, it seems to take extraordinary, intentional violence to the environment for it to be reported by the press or to appear in legal proceedings. So, when Iraq set oil-wells ablaze and caused massive oil spills in Kuwait, it was widely reported, yet there is little mention of environmental damage from recent conflicts in Iraq, Syria, or Afghanistan. Similarly, while effects of war on the environment are briefly mentioned in the ICJ's decision relating to the conflict in the Democratic Republic of Congo (DRC), in the end there are few details and no judicial remedy. The judgment is chiefly notable for recognizing the role of conflict resources in armed conflict;[12] other environmental impacts are not discussed despite reports including severe impacts on the World Heritage site, Kahuzi Biega National Park, and its rare gorillas.[13]

[7] US Senate Select Committee on Intelligence, "US Intelligence Community Worldwide Threat Assessment Statement for the Record" (12 March 2013) 9 (describing current and impending water shortages as a potential source of conflict) <http://www.dni.gov/files/documents/Intelligence%20Reports/2013%20ATA%20SFR%20for%20SSCI%2012%20Mar%202013.pdf> (accessed 25 July 2013).

[8] For a discussion of appropriate *jus post bellum* responses to "economic" crimes involving conflict resources, see Joanna Kyriakakis, "Justice after War: Economic Actors, Economic Crimes, and the Moral Imperative for Accountability after War" in Larry May and Andrew Forcehimes (eds), *Morality, Jus Post Bellum, and International Law* (Cambridge University Press 2012) 113.

[9] See Jann K. Kleffner, ch. 15, this volume (fluid, fact-driven); Rogier Bartels, ch. 16, this volume (fixed period); Martin Wählisch, ch. 17, this volume; Yaël Ronen, ch. 22, this volume.

[10] Peter H. Sand, "Compensation for Environmental Damage from the 1991 Gulf War" (2005) 35 *Environmental Policy and Law* 244, 247.

[11] See section III.A. below.

[12] *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda)* (Judgment) [2005] ICJ Rep. 168, para. 245. For a discussion of conflict resources, see Carl Bruch and Akiva Fishman, "Institutionalizing Peacebuilding: The UNCC, Conflict Resources, and the Future of Natural Resources in Transitional Justice" in Cymie R. Payne and Peter H. Sand (eds), *Gulf War Reparations and the UN Compensation Commission: Environmental Liability* (Oxford University Press 2011) 221.

[13] International Alert, "The Role of the Exploitation of Natural Resources in Fuelling and Prolonging Crises in Eastern DRC" (2010) para. 15 <http://www.international-alert.org/sites/default/files/publications/Natural_Resources_Jan_10.pdf> (accessed 23 July 2013); Ian Fisher, "In Congo War's Wake, a Massacre of the Wildlife" *New York Times* (New York, 28 July 1999).

There are two approaches to this topic in the literature: one asks "what is moral?" while the other asks "what works?"[14] Deterrence, revenge, and accountability are often identified as raisons d'être for *jus post bellum*; while those goals may also be served, they are not the primary aim. The theoretical frame for this work is functional; justice is defined to mean minimization of destruction of human and natural communities through prevention and remediation.

The next section will first describe the environmental integrity norm and how it is applied, and then it will turn to theories of *jus post bellum* to answer two questions: how does environmental integrity fit theories of *jus post bellum*? and how do *jus post bellum* theories contribute to the norm? I conclude that *jus post bellum* theories that prioritize peacebuilding over retribution accord best with environmental integrity, in terms of explanatory power and consonance with goals.

II. Environmental Integrity

A. Definition and scope

This section describes briefly a normative approach that is taking shape, as evidenced by the examples described in this chapter: law and policy recognize that environmental integrity is an obligation owed to the international community, present and future generations, by states and individuals, just and unjust belligerents, civilians, and peacekeepers. Work remains to be done to describe all of its limits and characteristics, but some of its characteristics can be described. Environmental integrity recognizes human needs and reflects scientific knowledge of the "living space of [...] human beings."[15] States, communities and individuals have rights to environmental integrity, though by its nature it is not an absolute right. In international law, the environment is a common concern of humanity, and as such the right may be vested in a trustee, acting on behalf of the public.[16] Future generations of the human species have the right to long-term care for the environment, on which their existence depends. The rights of post-conflict communities to reconstruction hinge on environmental integrity. As a legal matter it is rooted in principles of human rights, public trust,[17] and just war. Only rarely will

[14] See the seven-volume project of The Environmental Law Institute, the United Nations Environment Programme (UNEP), the University of Tokyo, and McGill University <http://www.routledge.com/books/series/PCPNRM/> (accessed 23 July 2013). A military handbook puts it this way, "Judge advocates [military lawyers] tend to think of the ROE [Rules of Engagement] in academic terms—definitions and rules. Soldiers tend to operationalize the materials (i.e., put the rules in terms of something that has happened or a set of facts they can visualize)." US Army Rules of Engagement Vignettes Handbook (May 2011).

[15] *Nuclear Weapons Advisory Opinion* (n. 1) para. 29.

[16] See David Caron, "The Profound Significance of the UNCC for the Environment" in Payne and Sand, (eds), *Gulf War Reparations and the UN Compensation Commission* (n. 12) 267–72 (explaining that some aspects of environmental claims are profoundly different from property claims, and that "a claims process addressing the environment inevitably seeks representation of a community's interest in the environment").

[17] The concept of public trust in the environmental context has a very different history and content from the notion of "trusteeship" that is discussed elsewhere (see e.g. Eric De Brabandere, ch. 7, this volume). It is, rather, as explained by Peter Sand, a legal doctrine that "(a) certain natural resources—regardless of their allocation to public or private uses—are defined as part of an 'inalienable public trust'; (b) certain authorities are designated as 'public trustees' to guard those resources; and (c) every citizen, as beneficiary of the trust, may invoke its terms to hold the trustees accountable and to obtain judicial protection against encroachments or deterioration." Peter H. Sand, "Public Trusteeship for the Oceans" in Tafsir Malick

criminal law be invoked on behalf of the environment; rather, strict, civil liability is preferred. It applies through all phases of armed conflict.

The international community has duties of care, restraint, assistance, mitigation, and remediation to safeguard the environment. The community has a right to environmental integrity in terms of functioning and complete environmental systems. These rights and duties together create a normative framework that provides guidance for post-conflict legal regimes.

The scope of the norm includes the positive elements of ecosystem services, non-human species, and sustainability. It also includes the negative elements of pollution and natural resource depletion. The definition of "environment" is encompassing. It is generally conceded to include natural resources such as minerals, oil and gas, agricultural land, forests, and fisheries. Human life and health; amenities, particularly cultural and religious objects and landscapes; and certain kinds of property are also generally accepted as subject to environmental damage, such as pollution, poisons, or other destructive forces. These are the elements of environment that are accounted for in the earlier legal regimes discussed below. Since then, science and economics have advanced and environment is now more often described in terms of ecosystem services, habitats, watersheds—linked living and non-living, interdependent systems. Harm to these is sometimes referred to as "pure environmental damage."[18] A fairly comprehensive definition is: "natural resources both abiotic and biotic, such as air, water, soil, fauna and flora and the interaction between the same factors; property which forms part of the cultural heritage; and the characteristic aspects of the landscape."[19]

Integrity means, simply, soundness, completeness. It is primarily analyzed in scientific terms,[20] not interpreted through a cultural, economic, or political lens, although these are strong influences on how differently it will be interpreted and applied. Like domestic environmental governance, it seeks to manage human activity that pollutes or erodes ecological complexity and resilience.

B. Environmental integrity in law and practice

The scope of the environmental concern expressed in existing law is too restricted, incomplete, inadequately integrated into military activities, and too rarely enforced. The United Nations Environment Programme (UNEP) post-war assessments of conflict

Ndiaye, Rudiger Wolfrum, and Chie Kojima (eds), *Law of the Sea, Environmental Law and Settlement of Disputes: Liber Amicorum Thomas A. Mensah* (Martinus Nijhoff 2007). An implication of the doctrine is that compensation paid to the government (the trustee) for damage to natural resources (the corpus of the trust) may only be used for the benefit of the trust corpus. This would explain the UNCC's Follow-up Programme, discussed below.

[18] Thomas A. Mensah, "Scope of Definition of Environmental Damage" in Alexandre Timoshenko (ed.), *Liability and Compensation for Environmental Damage* (UNEP 1998) 61.

[19] Council of Europe Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment (1993) Art. 2(10).

[20] This is translated into operational terms in various international agreements. For example, the secretariat of the Convention on Wetlands of International Importance (the Ramsar Convention) summarizes the detailed requirements of the convention as "the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development" <http://www.ramsar.org> (accessed 23 July 2013).

zones[21] and the United Nations Compensation Commission (UNCC) reports detailing environmental damage awards from the 1990–91 Gulf War[22] provide a picture of harms that are left from land and marine mines, targeting decisions, choice of weapons, other tactical decisions (other military engagements), and normal operations. Farther consequences of armed conflict that result from non-military actors are not addressed by humanitarian law, but include serious impacts from refugees and the failure of environmental regulation and management systems.[23]

Effective realization of a strong environmental integrity norm would close the gaps in current "black letter" law, legal rules, and institutions to enforce violations of the law of war affecting the environment more stringently and consistently. Tools include civil and criminal sanctions where appropriate; integration into military practice so that harm is more likely to be avoided; and remediation of environmental damage that would violate international peacetime standards as part of the post-conflict legal regime. Existing law provides some of what is required, as discussed below. It falls particularly short in defining the threshold of excessive damage and in failing to require assessment and response actions as soon as reasonably feasible after damage has occurred. The latter is a lesson from the Gulf War experience that was repeatedly remarked on by scientists and lawyers who worked with that environmental damage during the UNCC proceedings.[24]

Jus ad bellum *and* post bellum *reparations*

The legal consequences for beginning a war unlawfully may be visited on the unjust belligerent after conflict. Such unjust belligerents, even if they respect *jus in bello*, may nonetheless be liable for foreseeable environmental damage under the law of state responsibility. The basic justice theory that requires a wrongdoer to compensate the victim of wrongful action finds expression in international law in this doctrine.[25] Indeed, "[t]he mixed commission, to many international lawyers, is synonymous with the origins of their discipline" and such tribunals "were significant in the development of

[21] UNEP, *UNEP in Iraq: Post-Conflict Assessment, Clean-up and Reconstruction* (UNEP 2007) (UNEP *Iraq Assessment*).

[22] UNCC, "Report and recommendations made by the Panel of Commissioners concerning the second instalment of 'F4' claims" (3 October 2002) UN Doc. S/AC.26/2002/26; "Report and recommendations made by the Panel of Commissioners concerning the third instalment of 'F4' claims" (18 December 2003) UN Doc. S/AC.26/2003/31; "Report and recommendations made by the Panel of Commissioners concerning part one of the fourth instalment of 'F4' claims" (9 December 2004) UN Doc. S/AC.26/2004/16; "Report and recommendations made by the Panel of Commissioners concerning part two of the fourth instalment of 'F4' claims" (9 December 2004) UN Doc. S/AC.26/2004/17; "Report and recommendations made by the Panel of Commissioners concerning the fifth instalment of 'F4' claims" (30 June 2005) UN Doc. S/AC.26/2005/10.

[23] UNEP *Iraq Assessment* (n. 21); UNCC, "Report and recommendations made by the Panel of Commissioners concerning part one of the fourth instalment of 'F4' claims" (9 December 2004) UN Doc. S/AC.26/2004/16, paras 103–55.

[24] See e.g. Michael Huguenin et al., "Assessment and Valuation of Damage to the Environment" in Payne and Sand (eds), *Gulf War Reparations and the UN Compensation Commission* (n. 12) 92 (urging damage assessment in the immediate aftermath of the conflict).

[25] ILC, "Report of the International Law Commission on the Work of its 53rd Session" (23 April–1 June and 2 July–10 August 2001) UN Doc. A/56/10 (Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries).

the rules of state responsibility."[26] When a state breaches an international obligation to other nations without a valid excuse, its responsibility is engaged. So, for example, a state that attacks its neighbor breaches the prohibition on aggressive war; without an acceptable excuse such as self-defense, state responsibility requires that the wrongdoer provide reparations. They may be: (1) satisfaction, which means acknowledgement of the wrong by the wrongdoer; (2) restitution of assets that can be returned, such as land or goods; and (3) compensation in the form of money paid, in principle, to restore the victim to the condition in which it would have been had the wrongdoing not occurred.[27] Compensation is the form of reparation that contributes most directly to environmental integrity because it provides funds to pay for environmental remediation.[28]

Among the recent successors to those bodies is the Eritrea-Ethiopia Claims Commission, established by a treaty between the belligerents. Its mandate was to settle all claims for loss, damage or injury of either government or their nationals.[29] Presumably the broad scope of the Commission's mandate would have allowed for a variety of environmental claims, but the opportunity was neglected. Ethiopia claimed compensation for losses of gum Arabic and resin plants, and damage to terraces in the Tigray region for a value of approximately US$1 billion;[30] and for loss of wildlife. It failed to provide evidence of harm beyond the claim forms, with no details and no supporting evidence, and the Commission rejected the claims on that basis; the wildlife claim was withdrawn.

While in the past reparations were more likely to compensate lost commodities or real property, such as agricultural resources, rather than pure environmental losses such as wildlife,[31] the UNCC is an illustration of modern practice that includes non-market environmental and natural resource damage[32] and costs incurred by third party states to assist in responding to environmental emergencies[33] as compensable losses. Complex claims with serious financial consequences and opportunities for post-conflict environmental recovery resulted from Iraq's 1990 invasion of Kuwait. The United Nations Security Council used its authority under Chapter VII of the UN Charter to create an institution, the UNCC, that would process and pay claims for compensation against

[26] Sean D. Murphy, Won Kidane, and Thomas R. Snider, *Litigating War: Arbitration of Civil Injury by the Eritrea-Ethiopia Claims Commission* (Oxford University Press 2013) xv.

[27] David Bederman, "Historic analogues of the UNCC" in Richard B. Lillich (ed.), *The United Nations Compensation Commission: Thirteenth Sokol Colloquium* (Transnational Publishers 1995); Margery M. Whiteman, *Damages in International Law* (US Government Printing Office 1937).

[28] The Permanent Court of International Justice articulated the standard as "reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed." *Case Concerning the Factory at Chorzów (Germany v. Poland)* (Merits) PCIJ Rep Series A No. 17, 47.

[29] Agreement Between the Government of the State of Eritrea and the Government of the Federal Democratic Republic of Ethiopia (Eritrea–Ethiopia) (adopted and entered into force 12 December 2000) 2138 UNTS 94, reprinted in 40 ILM 260.

[30] Murphy, Kidane, and Snider, *Litigating War* (n. 26) 146.

[31] Bruch and Fishman, "Institutionalizing Peacebuilding" (n. 12).

[32] UNCC, "Report and recommendations made by the Panel of Commissioners concerning the fifth instalment of 'F4' claims" (n. 22) paras 52–8; José R. Allen, "Points of Law" in Payne and Sand (eds), *Gulf War Reparations and the UN Compensation Commission* (n. 12) 155; Peter H. Sand, "Environmental Principles Applied" in Payne and Sand (n. 12) 180–4.

[33] Sand, "Environmental Principles Applied" (n. 32) 185–6.

Iraq.[34] The legal basis for Iraq's liability was its breach of its international responsibility to refrain from the use of force against another state; the remedy was financial compensation, as provided by state responsibility. For the first time in such proceedings, the Security Council included "environmental damage and the depletion of natural resources" as heads of damage. Iraq eventually paid over US$5.2 billion for assessment, response and remediation costs, damage to public health, and lost environmental resources.[35] This, and compensation for other claims from individuals, corporations, and states, was paid by Iraq from a percentage of its oil revenues.

Jus in bello

The distinction between lawful and unlawful acts in Iraq's conduct of the war was not determinative of its liability for the UNCC,[36] but in other conflicts the *jus in bello* will matter.[37] Humanitarian, military, and criminal law prohibit very severe environmental harm, but fall far short of what is needed to preserve functioning environmental systems in accord with the right to environmental integrity. The limits on what is considered lawful in armed conflict will influence the sanctions imposed *post bellum*, and the ability of post-conflict societies to reconstruct their economies and communities.

Wanton attacks on food and water supplies, and scientific, cultural and educational sites and objects, are prohibited by customary principles of necessity, proportionality and military purpose[38] and treaty rules intended to protect civilians may be interpreted to extend to the environment, with limited application to date.[39]

Two treaties that specifically refer to the environment have not proved useful and may be problematic.[40] Additional Protocol I to the 1949 Geneva Conventions prohibits means and methods of warfare that are intended to cause "widespread, long-term and severe damage" to the natural environment, and reprisal attacks against the environment.[41]

[34] Cymie R. Payne, "The UNCC Program: Environmental Claims in Context" in Payne and Sand (eds), *Gulf War Reparations and the UN Compensation Commission* (n. 12) 7–10.

[35] Payne, "The UNCC Program: Environmental Claims in Context" (n. 34) 2.

[36] UNSC Res. 687 (3 April 1991) UN Doc. S/RES/687, para. 16, states that Iraq "is liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources [...] as a result of Iraq's unlawful invasion and occupation of Kuwait." See, generally, Payne, "The UNCC Program: Environmental Claims in Context" (n. 34).

[37] See Stahn, "'*Jus ad Bellum*,' '*Jus in Bello*'... *Jus Post Bellum*" (n. 3) 925–6 (discussing the nexus between *jus ad bellum* and *jus in bello*).

[38] Francis Lieber, Instructions for the Government of Armies of the United States in the Field (24 April 1863) Art. 14 <http://www.icrc.org/ihl/INTRO/110> (accessed 31 May 2013).

[39] UNEP (Elizabeth Maruma Mrema, Carl Bruch, and Jordan Diamond), *Protecting the Environment During Armed Conflict: An Inventory and Analysis of International Law* (UNEP 2009) section 2.

[40] Erik V. Koppe argues that "a new fundamental principle of the law of armed conflict must be induced" from Additional Protocol I, which he proposes should be called the principle of "ambituity." Erik V. Koppe, "The Principle of Ambituity and the Prohibition against Excessive Collateral Damage to the Environment during Armed Conflict" (2013) 82 *Nordic Journal of International Law* 53.

[41] Additional Protocol I Relating to the Protection of the Victims of International Armed Conflicts (adopted 12 December 1977, entered into force 7 December 1979) 1125 UNTS 3, reprinted in 16 ILM 1391, Arts 35(1), (3), 55.

The Convention on Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD)[42] echoes Additional Protocol I's threshold for damage, "widespread, long lasting or severe effects." This threshold reflects limited appreciation of the complexity of environmental systems. The UNCC, on the other hand, recognized that:

> [...] it is appropriate to have regard to the extent of the damage involved. [...] Other factors, such as the location and nature of the damage and its actual or potential effects on the environment may also be relevant. Thus, for example, where damage that might otherwise be characterized as 'insignificant' is caused to an area of special ecological sensitivity, or where the damage, in conjunction with other factors, poses a risk of further or more serious environmental harm, it may not be unreasonable to take remediation measures in order to prevent or minimize potential additional damage.

UNEP has also criticized these criteria as both too stringent and too imprecise.[43] The International Committee of the Red Cross finds that customary law prohibits destruction of any part of the natural environment that is not a military objective.[44] This qualification so limits the treaties' application that some scholars thought that these agreements would not have prohibited Iraq's environmental assaults had Iraq been a party;[45] and the Committee advising the International Criminal Tribunal for the former Yugoslavia Prosecutor ("ICTY advisory Committee") decided that "the environmental damage caused during the NATO bombing campaign does not reach the Additional Protocol I threshold."[46]

Another fundamental weakness in the implementation of the current legal regime was exposed when the ICTY advisory Committee prefaced this conclusion with a statement that it suffered a lack of reliable information about the present and long-term effects of "contamination" from the conflict.[47] In the post-conflict period, assessment of the extent and cause of environmental damage must be higher on the priority list so that losses can be reduced by rapid response actions and so that sanctions can be appropriately applied.

International criminal law appropriately makes intentional, severe violations of the environmental integrity norm a war crime. Here, again, environmental integrity demands a standard for harm that is better aligned with scientific knowledge about the environment. The Rome Statute, Article 8(b)(iv), defines an attack that is intentionally launched, knowing that it will cause "widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated" as a war crime within the jurisdiction of the International Criminal Court (ICC). Taken seriously by the ICC Prosecutor and charged where appropriate and applied with an appreciation of the best contemporary

[42] Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) (adopted 10 December 1976, entered into force 5 October 1978) 1108 UNTS 151, reprinted in 16 ILM 88.

[43] UNEP, *Protecting the Environment During Armed Conflict* (n. 39) 11.

[44] *ICRC* (Jean-Marie Henckaerts & Louise Doswald-Beck, eds.) 2005. *Customary International Humanitarian Law Volume I: Rules* (Cambridge University Press) Rule 43, see also Rules 44, 45.

[45] UNEP, *Protecting the Environment During Armed Conflict* (n. 39) 8; cf. Allen, "Points of Law" (n. 32) 156.

[46] Committee Established to Review the NATO Bombing Campaign against the Federal Republic of Yugoslavia (ICTY Committee), "Final Report to the Prosecutor" (13 June 2000) paras 14–25 (applying law of armed conflict principles of necessity and proportionality) <http://www.icty.org/x/file/About/OTP/otp_report_nato_bombing_en.pdf> (accessed 24 July 2013).

[47] ICTY Committee (n. 45) paras 16–17.

scientific understanding of which impacts are severe, Article 8(b)(iv) is a useful and necessary component of the sanctions for harm to the environment and should be considered part of *jus post bellum*.

However, the threshold criteria are the same and are again inadequate. Though not included explicitly as an element of jurisdiction in the statute of the International Criminal Tribunal for the former Yugoslavia, the Committee advising its Prosecutor evaluated liability for environmental damage from the NATO bombing of Kosovo; as noted above, it recommended against charging it as a crime.[48] At the time of the 1990–91 Gulf War there were advocates of bringing such charges against Saddam Hussein and other Iraqi officials based on the "environmental terror" as well as "the rape and pillage of Kuwait;"[49] but the state responsibility approach was chosen instead. In both these cases, we have seen that experts believed the environmental damage would not meet the criteria of "widespread, long-term and/or severe."

The last category of potential liability is not addressed by the law of war, leaving a question: what environmental liability flows from environmentally damaging actions of a belligerent that embarked on armed conflict legally and has acted in compliance with the canon of conventions and customary international law applicable to armed conflict? It scarcely needs to be said that war is likely to have collateral impacts on the environment that fall roughly either into the categories of fighting or "housekeeping." International legal instruments do not address normal operational damage to the environment that is left after hostilities cease, from sources such as the use of tracked vehicles on fragile desert surfaces; disposal of solid, toxic, and medical waste; depletion of scarce water resources; and incomplete recovery of ordnance.

Modern armed forces do show increasing concern for better management of wastes and use of resources, although it is often motivated by tactical interests: US troops have pressed concerns that exposure to toxic materials in "burn pits" is causing serious illness after they return home;[50] solar panels reduce the need for vulnerable supply lines to provide fossil fuel. This quote from a US field manual identifies multiple motivations:

> Environmental considerations are not solely focused on protection of the environment. For example, force health protection (FHP) issues may be directly linked to operational affects [*sic*] on the environment. FHP will significantly benefit from the integration of environmental considerations in the conduct of operations. Integrating environmental considerations also sustains resources, reduces the logistics footprint, promotes positive foreign nation relations, and supports postconflict stability efforts. All of these objectives contribute to the effectiveness of the mission and, when properly integrated, serve as force multipliers rather than mission distracters.[51]

[48] ICTY Committee (n. 45). Thilo Marauhn, "Environmental Damage in Times of Armed Conflict—Not 'Really' a Matter of Criminal Responsibility?" (2000) 840 *International Review of the Red Cross* 1029 (criticizing the report for creating further ambiguity).

[49] Richard L. Berke, "After the War; Senate Urges War-Crimes Trials" *New York Times* (New York, 19 April 1991) A.8; Adam Roberts, "Failures in Protecting the Environment in the 1990–91 Gulf War" in Peter Rowe (ed.), *The Gulf War 1990–91 in International and English Law* (Routledge 1993) 146.

[50] IOM (n. 4).

[51] US Army, "Environmental Considerations in Military Operations" (16 February 2010) FM 3-34.5/MCRP 4-11B (FM 3-100.4) <http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/fm3_34x5.pdf> (accessed 25 July 2013).

The Swedish Defence Research Agency is evaluating environmental vulnerability and considering how peacekeeping forces can minimize the "bootprint" of their operations.[52] This work promises to lead to eventual development of standards that strike an acceptable balance between protecting natural systems and the demands of armed conflict.

Existing peacetime law provides standards and sometimes legally binding rules. Standards for limits on pollution, land degradation, etc., can be found in the domestic law of the country where the fighting occurs. The domestic law applicable in the belligerents' home countries may be relevant to its own personnel,[53] and multilateral environmental agreements (MEAs) may be indicative or legally binding.

However, the relationship between these legal regimes and the law of war is not clear, other than the provision in the rules of occupation that require the occupying power to respect "unless absolutely prevented, the laws in force in the country."[54] The Vienna Convention notes the issue of whether treaties apply during conflict but declines to resolve it.[55] The ICJ recognized that peacetime MEAs most likely were not intended by their parties to preclude the right to self-defense; but in tension with that, the court states, "[r]espect for the environment is one of the elements that go to assessing whether an action is in conformity with the principles of necessity and proportionality;"[56] and state submissions to the ICJ on this point differed substantially as to whether and when environmental multilateral agreements continued to apply during armed conflict. The ILC commentary to its draft articles on effects of armed conflicts on treaties favored the presumption that MEAs continue to apply during armed conflict,[57] but that view did not make it into the agreed articles. That leaves clarity only for MEAs in force between the parties that are specific as to their effectiveness with respect to military activities, national security, and conflict.[58] As discussed below, the co-existence of the peacetime

[52] Annica Waleij, Timothy Bosetti, Russ Doran, and Birgitta Liljedahl, "Environmental Stewardship in Peace Operations: The Role of the Military" in Carl Bruch, William Carroll Muffet, and Sandra S. Nichols (eds), *Strengthening Post-Conflict Peacebuilding through Natural Resource Management, Vol. 6: Governance, Natural Resources, and Post-Conflict Peacebuilding* (forthcoming 2014).

[53] US Army (n. 50) 6-1, Appendix A (Commander's environmental responsibilities include compliance with appropriate federal, state, and local laws and regulations; "Military facilities are subject to federal, state, local, and foreign nation environmental laws. When requirements differ, facilities should apply the most stringent regulations.")

[54] Regulations concerning the Laws and Customs of War on Land annexed to the Fourth Hague Convention respecting the Laws and Customs of War on Land (adopted 18 October 1907, entered into force 26 January 1910) 205 Consol TS 277, Art. 43.

[55] It states that it "shall not prejudge any question that may arise in regard to a treaty from [...] the outbreak of hostilities between States" and that it does not apply to measures taken under the UN Charter in response to an aggressor state. Vienna Convention on the Law of Treaties (adopted 23 May 1969, entered into force 27 January 1980) 1155 UNTS 331, Art. 75.

[56] *Nuclear Weapons Advisory Opinion* (n. 1) para. 30. The Vienna Convention on the Law of Treaties (n. 54) does not resolve the question. The International Law Commission's Draft articles on effects of armed conflicts on treaties lists environmental agreements as "treaties the subject-matter of which involves an implication that they continue in operation, in whole or in part, during armed conflict." ILC, "Report of the International Law Commission on the Work of its 63rd Session" (n. 2), Annex: Indicative list of treaties referred to in Art. 7.

[57] ILC, "Report of the International Law Commission on the Work of its 63rd Session" (n. 2).

[58] For example, the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (adopted 16 November 1972, entered into force 17 December 1975) 1037 UNTS 151 (a site threatened by armed conflict may have special protections). The Convention on the Law of the Non-navigational Uses of International Watercourses (adopted 21 May 1997) UN Doc. A/RES/51/229

legal regime with the law of armed conflict is one of the conundrums that *jus post bellum* may be able to address.

Evidence that belligerents recognize the importance of ecosystem services, especially water and sanitation, is found in the practice of compensating injured states and civilians for damage, including environmental damage, caused by combat where there is no fault, or none is admitted.[59] For example, the United States has sometimes provided compensation payments on an ad hoc basis through various means. Sometimes the funds have been handled within the military structure,[60] other times outside. Both programs have occurred in the ongoing transitional period. It would be useful to investigate the extent to which these programs represent widespread practices of other nations' armed forces and the normative value that they carry for the parties on both sides of the transaction.

III. *Jus Post Bellum* and Environmental Integrity

Jus post bellum is variously conceived as a "branch of the Just War tradition,"[61] as post-war justice,[62] and as a set of legal rules that are international and specific to a unique period characterized by military control of territory.[63] Some authors define it even more narrowly as the "law of post-war reconstruction."[64] Carsten Stahn's outline of the dimensions of and need for *jus post bellum* are more comprehensive, as "a body of law after conflict [that] would identify legal rules, which ought to be applied by international actors (unless an exception applies) and clarify specific legal principles, which serve as guidance in making legal policy choices in situations of transition."[65] Stahn intends for *jus post bellum* to recognize contemporary practice of "a pluralist and problem-solving approach to peace-making, uniting affected parties, neutral actors and private stakeholders in their efforts to restore sustainable peace;" and to clarify the obligations of states that intervene militarily.[66] He also suggests that greater legal coherence would result from eliding the phases of conflict that are no longer usefully

(1997) Art. 29, is merely ambiguous, stating that principles and rules of law of armed conflict apply, but not indicating whether they suspend protections in the convention or enhance them. See UNEP, *Protecting the Environment During Armed Conflict* (n. 39) section 4.2.

[59] For example, the US government paid US$28 million to China as compensation for accidentally bombing the Chinese embassy in Belgrade during the NATO attack in 1998, killing embassy staff and damaging the building. "U.S. to Pay China for Bombing," *New York Times* (New York, 16 December 1999). Such payments are often *not* accompanied by an admission of fault.

[60] In Iraq and Afghanistan, the Commander's Emergency Response Program (CERP) was established to provide humanitarian relief and reconstruction assistance, including water and sanitation infrastructure. LTC Mark Martins, "No Small Change of Soldiering: The Commander's Emergency Response Program in Iraq and Afghanistan" in The Army Lawyer, US Department of the Army Pamphlet 27-50-369 (February 2004) <http://www.loc.gov/rr/frd/Military_Law/pdf/02-2004.pdf> (accessed 29 April 2013). The United States initially funded the CERP with cash and other assets determined to be the property of the Iraqi government that had been hidden by certain officials. Subsequently, the US government funded it with taxpayer dollars; the first appropriation was for US$180 million.

[61] Larry May, ch. 1, this volume.

[62] Gary J. Bass, "*Jus Post Bellum*" (2002) 32 *Philosophy & Public Affairs* 384, 385.

[63] Dieter Fleck, ch. 3, this volume.

[64] Kristen Boon, "Legislative Reform in Post-conflict Zones: *Jus Post Bellum* and the Contemporary Occupant's Law-Making Powers" (2005) 50 *McGill Law Journal* 285.

[65] Stahn, "'*Jus ad Bellum*,' '*Jus in Bello*'...'*Jus Post Bellum*'" (n. 3) 942; see also Carsten Stahn, "*Jus Post Bellum*: Mapping the Discipline(s)" (2008) 23 *American University International Law Review* 311, 332.

[66] Stahn, "'*Jus ad Bellum*,' '*Jus in Bello*'...'*Jus Post Bellum*'" (n. 3) 941–2.

sliced into a dualist system of war or peace.[67] Stahn's reflections on the need for *jus post bellum* have explanatory power for what we have seen is a fragmented set of legal protections for environmental integrity.

Stahn's observation that *jus post bellum* needs to address the issue of multiple sources of law that may apply at different stages and in overlapping ways is particularly useful in the context of environmental integrity.[68] The confusion over when and how domestic and international environmental regulation applies during conflict and in its aftermath can lead to avoidable pollution and natural resource damage. A simplistic view that would suspend peacetime environmental law for the duration of hostilities, and then snap it back into place on the signing of a peace treaty is inconsistent with legal theory and practice, as discussed previously. Yet there is not a clear understanding or consistent body of law to say what is legally required in international or internal conflicts.

Some of the base assumptions that preoccupy *jus post bellum* theorists are not apt to the experiences where environmental integrity has been tested. These theories tend to assume that the victor of a conflict will be just, which would be ideal if true. "Victor's justice" is a frequent, scathing criticism of reparations that challenges this assumption; if the defeated enemy were always the only guilty party there would be no problem. Alas, sometimes unjust aggressors win; sometimes even just victors have dirtied their hands in the course of the conflict. The difficulty is that victors are presumed to have no interest in this entire legal regime: they are unlikely to subject themselves voluntarily to judgment. That may not be entirely accurate: the unilateral reparations practice of the United States, a powerful state, can be seen as an effort to do justice; although it may be interpreted as an exercise of power by other means and the United States likely does not consider it legally mandated. In the field of environment, which is perhaps more focused on physical results than on moral and ethical concerns, the practical incentive to make the conquered land habitable and productive might predominate and make it easier for powerful states to conform their behavior to the modes of justice.

Discussions of *jus post bellum* also tend to focus on two belligerent parties and assign them roles of victor and defeated. Wars that provide recent examples of environmental integrity in action (or not so much) do not fit this pattern. The 1990–91 Gulf War left the aggressor, Iraq, defeated but in full control of its territory and the victor, Kuwait plus the Allied Coalition, facing massive reconstruction in many different states. The Eritrea-Ethiopia war had no clear victor and both states remained in control of their territories. The DRC is still struggling with conflict, and it is neither victorious nor defeated. These varied scenarios engage a multiplicity of actors in different roles, and complicate the analysis of where duties and rights lie.

Three intertwined elements of *jus post bellum* are necessary to realizing environmental integrity. One is reparations, which provide means for reconstruction, create a record of what happened, and may provide disincentive for repetition of unlawful acts. A second is collective concern, which is a basis for community action on several fronts to contribute to reconstruction of war-torn states. The third is reconstruction itself.

[67] Stahn, "'*Jus ad Bellum*,' '*Jus in Bello*'...'*Jus Post Bellum*'" (n. 3) 926.
[68] Stahn, "'*Jus ad Bellum*,' '*Jus in Bello*'...'*Jus Post Bellum*'" (n. 3) 926.

A. Reparations

Reparations are a central element of *jus post bellum*, in both traditional and modern theories, although some theorists place reparations in *jus in bello*.[69] There is clearly a doctrinal link to *jus ad bellum* and a temporal link to *jus post bellum*. Reparations are generally determined and performed after conflict ends, but the example of US practice in Iraq and Afghanistan, mentioned above, indicate that reparations and their near relatives, *ex gratia* payments and reconstruction assistance, are part of the extended periods of occupation, reconstruction, and peacebuilding that are associated with *jus post bellum* by Stahn and others. Reparations may be between multiple parties and are equally suited to international and internal conflicts.[70] Innovations in the UNCC's environmental compensation practice, discussed below, emphasized the potential for reparations to contribute to peacebuilding rather than retribution and punishment. Although the principle and practice is ubiquitous, it is also a matter of discomfort: the shadow of the Treaty of Versailles looms, and mutterings of "victor's justice" are frequent—despite the successful counter-example of post-Second World War.[71]

Bearing in mind that prevention of environmental harm and restoration of damage are central to the environmental norm, reparations may often be justifiable and even necessary. They do not have to be crushing.[72] Creating a broader base of funding than single-respondent reparations would address the concerns of just war theorists about the apparent unfairness of wealthy states compelling poor states, crushed already by the burdens of war, to pay reparations and those of environmental theorists about the peripheral role assigned to environmental recovery.

Successful recovery requires early response to environmental hazards and scientifically well-founded measures for recovery. A major cause of failed environmental claims is lack of sufficient evidence of causation and quantum of damage attributable to the alleged illegal acts. Parties in fora where proof of causation is required, such as the ICJ, commissions like the UNCC, and domestic courts, would benefit from an objective, reliable source of information. This can be to the benefit of respondents as well as claimants.[73] But because compensation processes are slow—even the comparatively swift UNCC process took six years to review all the Gulf War claims—it has been suggested that mechanisms need to be found to allow rapid first response.[74] A cooperative,

[69] Bass, "*Jus Post Bellum*" (n. 61) 387.

[70] The International Law Association states that "States shall assure that victims have a right to reparation under national law" as well as under international law in Art. 13 of its "Resolution No. 2/2010 Reparation for Victims of Armed Conflict" in *Report of the Seventy-Fourth Conference of the International Law Association* (International Law Association 2010).

[71] Richard M. Falk, "Reparations, International Law, and Global Justice" in Pablo de Greiff (ed.), *The Handbook of Reparations* (Oxford University Press 2006) 478.

[72] Larry May argues that, although the practice of reparations is a principle of *jus post bellum* in the Just War tradition, it should be interpreted with the principle of proportionality, or *meionexia* and recognizing that "even the just victor may have duties of reparation to the unjust vanquished [...] crucial for reestablishing trust."

[73] UNCC, "Report and recommendations made by the Panel of Commissioners concerning the third instalment of 'F4' claims" (n. 22) para. 30 ("The Claimants have submitted amendments to some of the claims based on results of monitoring and assessment activities. In some cases, these amendments increase the amount of compensation claimed, while others decrease the claimed amounts").

[74] Huguenin et al., "Assessment and Valuation of Damage to the Environment" (n. 24) 92.

international effort to make resources immediately available could be compensated when and to the extent that at-fault states are able.

B. Collective concern

Several theorists hint at collective responsibilities in *jus post bellum*, a position that aligns with the view that the environment is quintessentially a collective concern.[75] Consequently, Bass's claim that "in most cases the primary *jus post bellum* responsibility of a victorious state is to get out as soon as is possible"[76] is inapposite when the defeated state is unable to cope with severe environmental damage and governance failures on its own. States have a mutual concern and an obligation to the global community to care for the environment. Where the environment is damaged—species threatened by damaged habitat, air contaminated by burning toxic chemicals, watercourses fouled by failed sewage plants, or oil spills spreading toward drinking water supplies—states that are able to provide assistance for response measures appear to be encouraged to do by having their "environmental solidarity costs" compensated.[77]

In a practice that reflects the common concern aspect of environmental integrity, the UNCC established two programs that were innovations in reparations practice. One required oversight of long-term environmental remediation projects for which it had awarded compensation and the other engaged former enemy states to share environmental information and cooperate on restoration.[78] The oversight Follow-up Programme was a continuation of UNCC practice for humanitarian, corporate, and government claims programs that required governments to report whether they had transferred awards from the UNCC to the real claimants in interest.[79] This oversight measure was itself an innovation that is part of the general shift described by *jus post bellum* scholars to a less state-based, more law-based approach. Under the Follow-up Programme for Environmental Awards, governments that received awards for the cost of environmental remediation reported on the progress of the remediation projects to assure the UNCC Governing Council that the projects remained scientifically and financially reasonable.[80] This is in contrast with traditional reparations doctrine that would have allowed governments to use compensation awards as they pleased.[81] Like other innovations implemented by the UNCC and its environmental panel of

[75] Jutta Brunnée, "Common Areas, Common Heritage and Common Concern" in Daniel Bodansky, Jutta Brunnée, and Ellen Hey, *The Oxford Handbook of International Environmental Law* (Oxford University Press 2007) 564–7 (explaining that where all states derive common benefits from protective action, environment is a common concern of humankind, whether the environment in question is located within or beyond national territory).

[76] Bass, "*Jus Post Bellum*" (n. 61) 412.

[77] UNCC, "Report and recommendations made by the Panel of Commissioners concerning the second instalment of 'F4' claims" (n. 22) paras 32–5; Sand, "Compensation for Environmental Damage from the 1991 Gulf War" (n. 10) 247.

[78] Cymie R. Payne, "Oversight of Environmental Awards and Regional Environmental Cooperation" in Payne and Sand (eds), *Gulf War Reparations and the UN Compensation Commission* (n. 12).

[79] UNCC Governing Council, "Decision 18" (24 March 1994) UN Doc. S/AC.26/Dec.18.

[80] UNCC Governing Council, "Decision 258" (8 December 2005) UN Doc. S/AC.26/Dec.258.

[81] John R. Crook, "The UNCC and Its Critics" in Richard B. Lillich (ed.), *The United Nations Compensation Commission: Thirteenth Sokol Colloquium* (Transnational 1995) 80.

commissioners, the Follow-up Programme was based on "the common concern for the protection and conservation of the environment, and [...] obligations towards the international community and future generations."[82]

C. Reconstruction

Gary Bass argues that, for genocidal states, "*jus post bellum* must permit foreigners to interfere in the defeated country's affairs in ways that can reasonably be expected to prevent a new outbreak of an unjust war."[83] He also proposes that there should be a presumption against any right of victors to reconstruct society politically, except in cases of genocide, but sees an obligation to contribute to economic and infrastructure restoration. Environmental integrity often requires political and physical reconstruction.

An interesting question is whether a foreign victor is justified in undertaking environmental projects in the name of environmental integrity, and if so, subject to what constraints. Were the US contributions to efforts to restore the Mesopotamian Marshes in Iraq, drained by Saddam Hussein's government in part to put pressure on Shiite "Marsh Arab" communities, a legitimate exercise of *jus post bellum*?[84] The 2003 US invasion not only halted the drainage program but in the following occupation supported the rehabilitation of the marshes.[85] How much does it matter that the re-flooding of the marshes was initiated by local water managers and the Marsh Arabs, or that outside assistance was multinational (Canada, Italy, and the United States contributed support for scientific research and monitoring; most of the work was conducted by Iraqi researchers from the University of Basrah)?[86] On these facts, the restoration of the Marshes was fully consistent with Bass's additional criteria for reconstruction—participation of a broad array of governments, the citizens of the host state acting as a moral agent.

Again taking the US occupation of Iraq as an example (whether the United States is held to be a just or unjust victor), environmental reconstruction fits rationally into Bass's requirements. Having been the agent of destruction of infrastructure and other environmental damage and interrupted the government's environmental regulation and management,[87] the environmental integrity norm would require that the victor

[82] UNCC, "Report and recommendations made by the Panel of Commissioners concerning the third instalment of 'F4' claims" (n. 22) para. 42.

[83] Bass, "*Jus Post Bellum*" (n. 61) 396.

[84] Although it had not previously participated in the Convention, in 2007 Iraq designated the Hawizah Marsh in the southern part of the system as a Wetland of International Importance under the Ramsar Convention, for its unique and threatened biota.

[85] Curtis J. Richardson and Najah A. Hussain, "Restoring the Garden of Eden: An Ecological Assessment of the Marshes of Iraq" (American Institute of Biological Sciences 2006) 56 *BioScience* 477 <http://dx.doi.org/10.1641/0006-3568(2006)56[477:RTGOEA]2.0.CO;2> (accessed 25 July 2013). After a brief period of recovery, in 2004, Iran began construction of a dike that diverts water from the marshes and oil development is an additional threat.

[86] Richardson and Hussain, "Restoring the Garden of Eden" (n. 84) 480.

[87] UNEP *Iraq Assessment* (n. 21) (identifying pollution associated with power supply failures; oil-well fires; defensive oil-filled trench fires threatening public health, groundwater and soil; physical degradation of ecosystems from military vehicles, ground and air fighting; possible depleted uranium presence; looting of industrial sites and oil pipeline sabotage leading to release of serious toxic pollutants to land, air, and water; and solid waste, including military waste).

should supply emergency temporary environmental governance and restore (or help create) national governance bodies to assume responsibility for matters like municipal waste removal, environmental regulation of industry, land use decisions, and other normal activities. In a post-conflict context, it is likely that special facilities will be needed to address unusual recovery problems, especially emergency environmental assessment of reconstruction projects, de-mining, and safe disposal of ordnance and other military waste. There may be environmental disasters caused by the previous (unjust) regime that, like the Mesopotamian marshes, need immediate attention.

IV. Conclusion

This chapter began with two questions: whether an environmental integrity norm may provide support for a theory of *jus post bellum*, and how *jus post bellum* theory advances environmental integrity. I conclude that the investigation of these two questions is itself a useful framing tool to understand, and perhaps to improve, the layers of normative expectations, law and practice that guide belligerents and civilians in their interactions with the environment during armed conflict. There are no overarching generalizations that fit all circumstances, so I offer neither a theory of *jus post bellum* that will dictate how to satisfy normative expectations for environmental integrity, nor a theory of environmental integrity that will define *jus post bellum*: that would be too simplistic. I will offer some observations.

The first is that *jus post bellum* theories that prioritize peacebuilding over retribution accord best with environmental integrity, in terms of explanatory power and consonance with goals. The practices of legal bodies and armed forces described here show how this approach has led to implementation of environmental protection and restoration, not mere words deploring environmental destruction.

Secondly, the *jus enim naturae* (norm of environmental integrity) has been shown to incorporate law from multiple sources. Rather than narrow the sources of *jus post bellum*, it will be more productive to clarify how domestic law, environmental treaties, customary international environmental law, humanitarian law, human rights law, and international criminal law apply in times of peace, conflict, and the in-between.

Thirdly, strict time frames for a period of *jus post bellum* are of limited value. They may aid in identifying a limited number of legal obligations that are specific to the post-conflict period, but they will not contribute to the compelling concerns for environmental integrity.

Fourthly, the legal regime associated with the normative demand for environmental integrity needs to be publicized, analyzed, and integrated so that belligerents know how to conduct themselves and when issues come before courts and tribunals, claimants can make better presentation of their environmental losses, respondents can defend their actions, and judges can render well-informed decisions based on the relevant science and a clear legal framework.