

Climate-Change Related “Non-economic Loss and Damage” and the Limits of Law

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Images from media during the past decades display how fragile individual communities are to natural disasters that have become more frequent and more severe due to climate change. In places such as Florida and Iowa struck by devastating hurricanes and floods, individuals might eventually receive through insurance coverage or government programs financial payments to cover the loss of a structure or a vehicle allowing them to rebuild a semblance of their former life. There is, however, no adequate

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payment for the loss of family photographs, family heirlooms, or the previous sense of personal security that natural disaster can only be a once-in-a-lifetime event. In places such as Mozambique and India struck by fatal cyclones, there is often no immediate financial recovery available for the damages suffered in communities.¹ Yet, these communities experience all the same social dislocation with the collapse of neighborhood networks. This article examines the concept of “loss and damage” in a world where climate impacts are being experienced over multiple years increasingly at the community level and, as in the case of Mozambique’s lengthy recovery from Cyclone Idai, at a national level. As climate impacts increase in prevalence, policymakers are focusing greater attention on how to address the destruction and depletion from “natural” events, where the severity and frequency of these events have been exacerbated by human-fueled climate change. There is a growing recognition that these types of ongoing climate-related “problems of loss cannot be analytically or ethically assigned to the future.”² Something needs to be done now-but the question is what can the legal system do to address loss and damage that cannot be valued financially?

The first part of this article examines the growing international consensus about how States understand their obligations to address climate change related “loss and damage.” The second part of this Article will question whether the current conversation around “loss and damage” is a poor substitute for addressing non-economic losses where compensation is an inadequate proxy. The third part of this Article examines how the international community proposes addressing non-compensable losses and describes how legal system attempt to institute remedies for otherwise non-compensable losses. The final part of this Article departs from a legalistic approach to loss and damage to focus instead on the role of “social grief” to address non-compensable losses and potentially avoid future losses.

I. HISTORY OF CLIMATE CHANGE-RELATED “LOSS AND DAMAGE” AS AN INTERNATIONAL OBLIGATION

Before the adoption of the United Nations Framework Convention on Climate Change (UNFCCC), the Alliance of Small Islands Developing

1. Steve Evans, *Swiss Re Puts Insured Catastrophe Losses at \$19bn for H1 2019*, ARTEMIS (Aug. 16, 2019), <https://www.artemis.bm/news/swiss-re-puts-insured-catastrophe-losses-at-19bn-for-h1-2019/> [<https://perma.cc/3VAZ-ESLF>] (Noting that only 7% of the \$2 billion of economic loss in Mozambique after Cyclone Idai was insured against catastrophic loss).

2. Rebecca Elliot, *The Sociology of Climate Change as a Sociology of Loss*, 59 EUROPEAN JOURNAL OF SOCIOLOGY / ARCHIVES EUROPÉENNES DE SOCIOLOGIE 301, 304 (Cambridge Univ. Press 2018).

States understood that sea level rise would have profound impacts on the ability of coastal communities to adapt.³ Increased tropical storms, loss of coral reefs, and salinization of fresh water reservoirs create long-term losses that could not be easily addressed through financial or technology transfers. The Alliance proposed the introduction of an insurance pool to compensate the vulnerable developing countries who might experience loss and damage due to sea-level rise.⁴ The pool would be funded based on a formula based on a combination of a nation's gross national product and its contribution to total greenhouse gas emissions. The majority of the negotiating States declined to design a specific insurance pool as proposed by the Alliance but did provide for the possibility of insurance as a mechanism to meet concerns of developing States.⁵ While the word "loss" was never included in the UNFCCC, the recognition that certain States and regions are more vulnerable than other States and regions to climate impacts was acknowledged. In particular, negotiators understood that small islands states, countries with low-lying coasts; countries with arid and semi-arid areas; countries with areas prone to natural disasters; countries with areas liable to drought and desertification; countries with areas of high urban atmospheric pollution; and countries with areas with fragile ecosystems were more likely to experience losses due to climate impacts.⁶ Over 15 years, these categories of countries are now at the frontline of disasters that have been attributed to climate change ranging from flooding to fires to heat waves triggering migrations and social conflicts.⁷

Little concrete action was taken by States to address the concerns of AOSIS. In 2008, the member States of AOSIS, concerned that promises

3. *About Us*, AOSIS, <https://www.aosis.org/about/> [<https://perma.cc/U88W-XFRR>].

4. Elements Related to Mechanisms, INC/FCCC, 4th Sess., Working Group II, Agenda Item 2(b), at 3, U.N. Doc. A/AC.237/WG.II/CRP.8 (1991) (draft annex relating to insurance submitted by Vanuatu); Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the work of its fourth session. Held in Geneva, Dec. 9–20, 1991, U.N. GAOR INC/FCCC, 4th Sess., U.N. Doc. A/AC.237/15 (1992): 126.

5. United Nations Framework Convention on Climate Change, A/RES/48/189, art. 4(8).

6. *Id.* at art. 4(8)(a)-(g).

7. See, e.g., Darko Janjevic, *Indian heatwaves trigger clashes over water*, DEUTSCHE WELLE (June 8, 2019) <https://www.dw.com/en/india-heat-wave-triggers-clashes-over-water/a-49110943> [<https://perma.cc/RAE3-CRBY>]; Aryn Baker, *How Climate Change is Behind the Surge of Migrants to Europe*, TIME (Sept. 7, 2015), <https://time.com/4024210/climate-change-migrants/#ob-player> [<https://perma.cc/G8VJ-JDFJ>] (Describing how the Syrian drought as exacerbated by climate change and desertification in North Africa operated as major triggers for migration.).

under the UNFCCC were not being fulfilled, prepared a “Multi-Window Mechanism to Address Loss and Damage from Climate Change Impacts,” which called for a renewed focus on insurance, rehabilitation, and risk management.⁸ A more structured conversation on “loss and damage” began in 2010 at the Cancun COP-16, with the decision to include “loss and damage” for developing countries as part of a work program that might include the development of a climate risk insurance facility and/or rehabilitation from the impacts such as sea-level rise.⁹

No specific mutually-agreed-upon definition for “loss” or “damage” has been offered in intergovernmental meetings. In the context of international discussions, the term “loss” seems to refer to irreversible impacts, while “damage” seems to refer to potentially reversible impacts where a party might be made whole.¹⁰ Academic contributions have characterized, “loss and damage” as the “negative effects of climate variability and climate change that people have not been able to cope with or adapt to.”¹¹ Another definition for “loss and damage” includes “current or future negative impacts of climate change that will not be addressed by adaptation efforts”¹² because the impacts either could not be avoided or communities failed to respond in time to avoid the impact.¹³

At the Conference of Parties in Doha (COP-18), States acknowledged a need to react to both slow-onset climate impacts such as sea level rise and extreme events through systematic risk management strategies.¹⁴ Parties agreed that addressing “loss and damage” would have to include grappling with difficult concepts such as “non-economic” losses and damages, which

8. AOSIS, Proposal to the AWG-LCA, *Multi-Window Mechanism to Address Loss and Damage from Climate Change Impacts* (2008), http://unfccc.int/files/kyoto_protocol/application/pdf/aosisinsurance061208.pdf [<https://perma.cc/HUU7-UH3H>] (last visited Nov. 15, 2019).

9. U.N. FCCC, 16th Sess., Rpt. of the Conference, Dec. 1/CP.16 at p. 2, U.N. Doc. FCCC/CP/2010/7/Add.1 (Mar. 15, 2011).

10. *Id.* See also *infra* notes 14 and 16.

11. KOKO WARNER ET AL., EVIDENCE FROM THE FRONTLINES OF CLIMATE CHANGE: LOSS AND DAMAGE TO COMMUNITIES DESPITE COPING AND ADAPTATION 20 (2012), <http://www.ciesin.org/binaries/web/global/news/2013/cdkn-report.pdf> [<https://perma.cc/HBN4-KDWK>] (last visited Nov. 15, 2019).

12. AINUN NISHAT ET AL., A RANGE OF APPROACHES TO ADDRESS LOSS AND DAMAGE IMPACTS FROM CLIMATE CHANGE IN BANGLADESH 7 (June 2013), <http://asiapacificadapt.net/sites/default/files/resource/attach/a-range-of-approaches-to-address-loss-and-damage-from-climate-change-impacts-in-bangladesh.pdf> [<https://perma.cc/NW8V-F6UF>].

13. DR. RODA VERHEYEN, LOSS AND DAMAGE: TACKLING LOSS & DAMAGE- A NEW ROLE FOR THE CLIMATE REGIME 6 (Nov. 2012), http://www.geo.uzh.ch/~chuggel/files/download/phd_colloquium/verheyen_tackling_loss_damage_cdkn12.pdf [<https://perma.cc/8B4R-JM9L>].

14. United Nations Framework Convention of Climate Change, Decision 3/CP.18, U.N. Doc. FCCC/CP/2012/8/Add.1, at ¶ 6 (Feb. 28, 2013).

would include those losses which cannot be readily quantified and reimbursed.¹⁵

In 2013, at the Conference of parties in Warsaw (COP-19), States agreed to adopt the Warsaw International Mechanism for Loss and Damage to be reviewed in 2016.¹⁶ The decision marked a shift from thinking about “loss and damage” as an approach to climate adaptation and mitigation with States “*acknowledging* that loss and damage associated with the adverse effects of climate change includes, and in some cases involves more than, that which can be reduced by adaptation.”¹⁷ “Loss and damage” has become a third arena for State negotiation and action. The priority of the Mechanism would be on developing countries that are vulnerable to climate impacts. The institution for the Mechanism is an executive committee comprised of representatives from developing and developed States who will deliver reports to two of the institutions established under the UNFCCC: the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation. In addition to the gathering and disseminating of information, the facilitation of dialogue, and the coordination of technical support, the Warsaw Mechanism is expected to promote “action to address gaps . . . in the approaches to address loss and damage” including non-economic losses.¹⁸

In 2015, formalizing the efforts initiated by the Warsaw Mechanism, States negotiated Article 8 of the Paris Agreement to encourage states to cooperate and coordinate on *inter alia*: “(a) Early warning systems; (b) Emergency preparedness (c) Slow onset events; (d) Events that may involve irreversible and permanent loss and damage; (e) Comprehensive risk assessment and management; (f) Risk insurance facilities, climate risk pooling and other insurance solutions; (g) Non-economic losses; and (h) Resilience of communities, livelihoods and ecosystems.”¹⁹ Article 8 was unprecedented in terms of explicitly bringing the concepts of “loss and damage” into a treaty format, but the obligations are fuzzy at best. Cooperation on items (a) through (f) are already well-accepted mandates arising from disaster risk

15. *Id.* ¶ 7.

16. United Nations Framework Convention of Climate Change, Decision 2/CP.19, U.N. Doc. FCCC/CP/2013/10/Add.1, at ¶ 1, 2, 5–7, 15 (Jan. 31, 2014).

17. *Id.*

18. *Id.* ¶ 5(a)(i).

19. Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104.

reduction planning.²⁰ Cooperation on items (g) and (h) are largely uncharted territory for policymaking. In the past few years since the Paris Agreement has entered into force, States have understandably focused their attention on those areas of “loss and damage” that seem most tangible. In 2017, States launched the Fiji Clearing House for Risk Transfer at COP-23 to enhance knowledge about “risk transfer” and link “risk experts” from the insurance industry to national decisionmakers.²¹ The Clearing House’s website approaches loss and damage pragmatically with case studies on how to create inclusive insurance programs and how to consider various risk transfer options including bonds, indemnity insurance, disaster risk pooling and index-based climate risk insurance.²²

As of 2020 States are facing a variety of non-economic damages associated with the COVID-19 pandemic ranging from pain, suffering, emotional distress, loss of society/companionship, loss of community rituals (e.g. graduations, funerals, weddings), and loss of enjoyment. Even with the breadth of first-hand experience of the impact of non-economic losses, diplomatic conversations on non-economic loss and damages in the context of continuing climate change impacts have remained narrowly scoped. As of 2020, States have simply committed to launch some expert groups on non-economic losses with a likely future focus on quantifying non-economic losses and damages.²³

A legal approach focused on recovery for quantitative losses reflects existing market forces at work in a global economy. International policymakers hope to address the immediate and impending crises and focus on recovery for those losses and damages that are measurable. After all, a building can be rebuilt, an orchard can be replanted, or a fishing vessel can be replaced. Yet the increasing international and legalistic focus on risk transfer and quantification, while supported by a pre-existing infrastructure of insurance and reinsurance companies and pools, fails to address qualitative losses because these losses, which are more profound and longer lasting, operate outside of the logic of the market. Even if a quantitative approach could

20. See generally United Nations International Strategy for Disaster Reduction, Sendai Framework for Disaster Risk Reduction 2015–2030 (2015), https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf [<https://perma.cc/L2YM-FSUV>].

21. FIJI CLEARING HOUSE FOR RISK TRANSFER, <http://unfccc-clearinghouse.org/> [<https://perma.cc/W4NS-SKZ8>].

22. *Id.*

23. United Nations Framework Convention on Climate Change, *Report of the Executive Committee of the Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts and the 2019 Review of the Mechanism* (Dec. 9, 2019), available at FCCC/SB/2019/L.8. See, e.g., ¶ 33 Option 1(e) calling for guidance to be recommended “to the operating entities of the Financial Mechanism under the Convention to expand their focus areas to cover thematic areas such as . . . non-economic losses.

someone compensate for the non-economic losses and damages, as of 2020, experts observe that “non-economic losses” such as “territory, human mobility, and cultural identity are not well covered . . . by current climate financed funds and channels.”²⁴ The next section of this Article examines the category of “non-economic losses and damages” related to climate, which States repeatedly acknowledge exist but have no real plan to address.

II. CLIMATE-CHANGE RELATED NON-ECONOMIC LOSSES AND DAMAGES

Traditional insurance should be adequate to address purely economic losses where monetary substitution is possible and there are markets capable to risk-transfers associated with climate impacts. However, as anyone who has ever experienced physical loss knows, a loss typically weighs more heavily than a gain not just because of the psychological heuristic of loss aversion but also because there are often intangibles embedded in memories that are associated with a particular physical item.²⁵ For example, take a family home that is destroyed by a fire or a flood where all of the children’s art projects attached to the refrigerator and given to their parents for birthdays or holidays have been completely lost. While in theory it might be able to do a reasonable facsimile of the art projects, they will no longer be “authentic” projects but empty renditions. While a child’s painting from when they were five may have little to no financial value in a market economy, the memories attached to the painting still represent losses, but not losses that our legal system is capable of addressing. At best, the legal system might offer some services such as counseling to cope with these types of physical losses that are more than material.

With the acceleration of climate change, there are increasing numbers of additional losses beyond the individual losses associated with disasters where the legal system offers no adequate remedy. Typically, these are indirect losses. These types of losses are often referred to as “non-economic losses

24. United Nations Framework Convention on Climate Change, *Elaboration of the Sources of and Modalities for Accessing Financial Support for Addressing Loss and Damage*, ¶ 154 (June 14, 2019), available at FCCC/TP/2019/1.

25. Loss aversion is a well-studied phenomenon where the prospect of loss is given more weight in decision-making than the possibility of a gain. Daniel Kahneman & Aaron Tversky, *Prospect Theory: An Analysis of Decision under Risk*, *ECONOMETRICA* 47, 263 (1979).

and damages” (NELD).²⁶ Certain groups particularly indigenous groups who rely on transmission of knowledge of a place based on oral tradition and personal exchanges are particularly vulnerable to NELD. Likewise, groups that are geographically exposed to early climate impacts including desertification and sea level rise are likely to experience NELD earlier than other groups.

NELD are priorities for vulnerable States who already recognize the types of trade-offs that will be demanded of them in implementing climate policies. In 2014, the Bangladesh Centre for Advanced Studies conducted structured interviews in coastal South-west Bangladesh, an area highly vulnerable to climate-change related impacts, to understand qualitatively more about the impacts of NELD on communities.²⁷ In villages, the researchers unveiled a variety of impacts that could be attributed to rapid changes in the “climate”, including livelihood transitions to jobs that are likely to be more resilient to climate impacts or community transitions as individuals migrate out of flood prone areas. The important point that emerges from this research is that while NELD is a subject of international discourse, households and communities are frequently impacted. State decisionmakers may not be well positioned to understand loss and damage at this level because state researchers in collecting information seek broader national trends and often fail to understand the extent of disruption associated with smaller scale impacts.

Among the categories of NELD that have been recognized are human life, human health, cultural heritage, cultural identity, ecosystems service, community knowledge, and sovereignty.²⁸ Researchers have grouped these types of losses and damages into material (human life, biodiversity), non-material (human autonomy), and instrumental losses (ecosystem services). These categories might also be grouped more broadly into three meta-categories: individual human losses, human social losses, and non-human losses.²⁹ Individual human losses include exposure to health risks,

26. OLIVIA SERDECZNY, ELEANOR WATERS, & SANDERS CHAN, *NON-ECONOMIC LOSS AND DAMAGE IN THE CONTEXT OF CLIMATE CHANGE* (Deutsches Institut für Entwicklungspolitik 2016).

27. BANGLADESH CENTRE FOR ADVANCED STUDIES, *NON-ECONOMIC LOSS AND DAMAGE CAUSED BY CLIMATIC STRESSORS IN SELECTED COASTAL DISTRICTS OF BANGLADESH* (Oct. 2014), http://www.iccad.net/wp-content/uploads/2016/02/ADB-Study-on-Non-Economic-Losses-and-Damages-Report_Final-Version-Reduced-File-Size.compressed1.pdf [<https://perma.cc/PDC2-FB2M>].

28. OLIVIA SERDECZNY, *LOSS AND DAMAGE FROM CLIMATE CHANGE 209–10* (Reinhard Mechler et al. eds., 2018).

29. U.N. Framework Convention on Climate Change, *Non-Economic Losses in the Context of the Work Programme on Loss and Damage*, U.N. Doc. FCCC/TP/2013/2 (Oct. 9, 2013), <https://unfccc.int/sites/default/files/resource/docs/2013/tp/02.pdf> [<https://perma.cc/D64C-VB7P>].

loss of nourishment, and loss of connection to a place, particularly a place with deep spiritual or ancestral ties. Social losses include loss of governance structures or abandonment of territory. Non-human losses include destruction of habitats and predicted extinctions. Using these groupings are useful for thinking about how legal systems are presently responding to NELD, discussed further in the next section.

What can States do to address NELD? States might financially invest in assisting particular communities with livelihood transitions by providing technology transfers. This approach is in line with existing expectations in international treaties such as the UNFCCC to cooperate on financial and technology transfers from developed countries to developing countries.³⁰ For example, fishermen who fish along a coastal reef severely impacted by ocean acidification might receive funding to become aquaculturists. The idea would be that one type of fish extraction (aquaculture operation) can be a substitute for another type of fish extraction (marine fishing). Yet, the type of “adaptation” exercise that this might entail would be an intervention in personal autonomy, and contribute substantial harm to the freedom to choose a livelihood since previous and viable livelihood options would be foreclosed by rapidly changing environmental conditions.³¹ If States respond to address NELD with this type of response, then instrumental values of having something to do for a livelihood may be protected at the expense of intrinsic values including self-identity. On many levels, protecting instrumental values is highly pragmatic because it will further adaptation efforts, but there may be long-term psychic costs in always prioritizing what is instrumental over what is intrinsic. Humans may be surviving but not “living” lives aligned with their preferences or values.

What else can States do to address NELD? Technical experts commissioned by the United Nations concluded that, “[i]ncorporating non-economic values into economic decision-making is an important first step towards ensuring that non-economic systems are properly managed and are robust and healthy.”³² This advice, whether intended or otherwise, reflects a particular legalistic mindset about NELD—the mindset that NELD can be somehow

30. Paris Agreement, *supra* note 19, art. 10(4). (Describing a framework for technology development and transfer in order to support the implementation of the Paris Agreement.).

31. Robert Goodin, *Theories of Compensation*, 9:1 OXFORD JOURNAL OF LEGAL STUDIES 6, 70 (1989).

32. Framework Convention on Climate Change, *Non-economic losses in the context of the work programme on loss and damage*, 53 U.N. Doc. FCCC/TP/2013/2 (Oct. 9, 2013).

managed within our existing governance structures of “economic decision-making.” This belies the fact that it is our collective global “economic decision-making” that has led to set of crises and catastrophes. We are now forced to think about large-scale and widely distributed NELD resulting from globalization. Notably, many of those who will be the greatest victims of NELD are those who have the least input into “economic decision-making” having been marginalized geographically and politically.

III. MANAGING NON-ECONOMIC LOSSES AND DAMAGES

Addressing NELD as a legal matter is complicated by the incommensurability of NELD with a legal system that is based largely on economic recovery programs as the primary mechanism for making an injured party whole. In some instances, non-economic losses can be as severe or more severe than economic losses particularly when the losses are permanent. This has not meant that law ignores NELD, but that it struggles to respond in a manner that is commensurate with the gravity of the loss. In theory, traditional risk management instruments could be designed to cover for “non-economic losses,” but these instruments will fall short because they will attempt to convert a set of social values into a commodity form for purposes of recovery.

States under the Warsaw Mechanism have designated working groups to respond to the acknowledged categories of NELD. One of these working groups is a task force to develop recommendations for “integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change.”³³ Another expert group is considering how to approach NELD.³⁴ As part of its work plan, the group is expected to collect and synthesize information on available tools to assess NELD that can be distributed to States, this tool might also include some legal remedies.

The challenge for States in responding to NELD is that whatever alternatives might be available in the attempt to address loss and damage are poor substitutes at best. When the United Nations requested additional information about NELD, experts commenting on losses of mobility observed that “[d]isplacement can result in a loss of security (including legal rights) and agency (the ability to control one’s location and livelihood), among other things.”³⁵ While the experts did further describe what they

33. *Task Force on Displacement*, UNFCCC (Oct. 2019), https://unfccc.int/sites/default/files/resource/TFD_brochure_29102019.pdf [<https://perma.cc/PXQ6-PANN>].

34. *Expert Group on non-economic losses*, UNFCCC, <https://unfccc.int/process/bodies/constituted-bodies/executive-committee-of-the-warsaw-international-mechanism-for-loss-and-damage-wim-excom/sub-groups/expert-group-on-non-economic-losses> [<https://perma.cc/AX5R-ZWJQ>].

35. SAM FANKHAUSER, ET AL., *Non-economic losses in the Context of the UNFCCC work programme on loss and damage*, LONDON SCHOOL OF ECONOMICS AND POLICY,

meant by legal rights in their report, it can be assumed that they were referring not just to land tenure and property rights but also to economic, social, and cultural rights. How can one compensate for those fundamental rights that lie outside of a market system? The answer is one compensates for NELD, poorly at best. The remainder of this section looks at legal and political attempts to compensate for NELD associated with individual human losses, human social losses, and non-human losses

IV. INDIVIDUAL HUMAN LOSSES

Fashioning remedies in legal systems rely on the legal fiction that some form of compensation will overtime be adequate to address the types of losses and injuries arising from a legal dispute. The theory has been that even where the remedy may only be able to compensate for certain aspects of loss or damage, the remedy will still be considered sufficient for legal purposes. For example, in the case of the loss of human life, legal systems such as the United States provide for family or next-in-kin compensation in a wrongful death action when an individual is killed negligently or recklessly.³⁶ Some portion of this compensation may be based on loss of consortium, recognizing through financial formulas the intrinsic relationship value of the loss of a parent or a spouse. Legal systems have not yet, however, recognized claims for loss of consortium based on an individual's involvement in their community as a leader. This non-recognition has implications particularly for traditional and indigenous communities where the loss of a tribal leader may have consequences for cultural cohesion. The problems of pricing a human life for purposes of offering a legal remedy are legion. Is an infant's life worth more than a senior citizen with decades of experience? Is a person's life with multiple sclerosis worth as much as a person without this debilitating disease? Is a banker's life worth more than a farmer's life? Is an American's life worth more than a Bangladeshi's life?

GRANTHAM RESEARCH INSTITUTE ON CLIMATE CHANGE AND THE ENVIRONMENT 31 (Feb. 2014), <http://eprints.lse.ac.uk/64554/1/Fankhauser-Dietz-Gradwell-Loss-Damage-final.pdf> [<https://perma.cc/WEG6-FZHA>].

36. U.S. States have wrongful death statutes that operate as tort statutes. *See, e.g.*, FLA. STAT. § 768.21 (2003). The Federal government has also indicated particular formulas for compensation for wrongful death. *See, e.g.*, 33 U.S.C. § 909 (The Longshoremen and Harbor Worker's Compensation Act); The Federal government has also indicated particular formulas for compensation for wrongful death. *See, e.g.*, 33 U.S.C. § 909 (The Longshoremen and Harbor Worker's Compensation Act).

In the context of attempting to spur government action on climate change, much has been written identifying “loss of life” as an unacceptable impact. In an attempt to perform “cost-benefit” analyses to make policy decisions, government regulatory agencies such as the United States Environmental Protection Agency rely on the value of a statistical life. The “statistical life” is the basis for arguing why emissions need to be sharply reduced to avoid warming scenarios, where depending on whether there is appropriate adaptation, 1,300-9,300 people in 49 major U.S. cities may die from heat-related incidents linked to climate change.³⁷ Using the concept of a statistical life, agencies are able to calculate that “loss of life” for possibly 5,400 individuals due to heat waves would be valued at \$82 billion. This seems like a high price tag, but what does the “statistical life” tell us about the losses associated with actual lives? While calculating some price tag might be better than no price tag because life is “priceless”,³⁸ assigning a price tag to an individual life (whether statistical or actual) never really addresses the non-economic aspects of loss and damage associated with individual human losses.

V. HUMAN SOCIAL LOSSES

Even more difficult to calculate than individual human losses are non-economic losses and damages associated with shared social losses. Here, unlike individual human losses where there are wage charts and existing insurance modeling, there is no market value assigned to the relationship of community solidarity or to intimate knowledge of a landscape linking past generations with existing generations. It might be possible to create an economic model based on “non-use,” or existence values, but this may only compound the experience of loss. For example, imagine a traditional coastal community with access to a particular plant, or animal part used for medical healing in a community that cannot be substituted. Let us assume for purposes of this hypothetical that the particular plant or animal part has not yet been demonstrated to have any financially transferable value because no laboratory wants to develop a commodity drug based on the indigenous practices. How does a legal system value the community’s knowledge and use of the plant when the community itself would never assign an economic market value to the plant or animal? Maybe, a legal system would attempt to make a comparison between the coastal community in our example, and some other community to arrive at some estimate of

37. Jeremy Martinich & Allison Crimmins, *Climate damages and adaptation potential across diverse sectors of the United States*, 9 NATURE CLIMATE CHANGE 397, 400 (2019).

38. Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENVTL. L. REV. 189, 192 (2000).

how much a particular untreated disease financially costs a community. However, like valuing human lives based on wages, this type of measuring exercise misses the point that what makes a life valuable is not the age of a person or the wages they earned or could earn. If a model were to be based on “non-use” or existence values, what happens when the intangible medical healing practice is lost due to the tangible loss of a particular plant or animal. Perhaps the plant or animal had no scientifically verifiable medical properties, and it was simply the communally shared belief that the presence of the plant or animal would lead to healing. How can law compensate for shared beliefs that no longer exist due to climate impacts?

Some States are already grappling with the loss of a shared belief in a particular model of nationhood based on place. Citizens of the Pacific Islands draw on a variety of customary governance experiences. With the emergence of European decolonization, peoples of the Pacific sought to build new place-based governance structures that encompassed customary governance structures. These new nation-state governance models are now breaking down as island people struggle with the fragmentation of their physical communities associated with sea level rise. For some States, it is no longer simply a question of internal migration within the nation-state, but also planning prospectively for external migration. For example, the island nation of Kiribati as part of its climate adaptation strategy has purchased an \$8.7 million estate of land in Fiji using money from Kiribati’s sovereign wealth fund.³⁹ The Kiribati people experience layers of loss and damage. They live today with loss of some territory as well as psychic damage associated with living in a state of fear associated with increasing climate threats to their homelands. In the future, the Kiribati may experience further losses associated with abandoning territory and places before relocating to presumably a physically safer place. Some of these losses could in theory be compensated for in terms of real estate values or natural resource values. Other losses are both ineffable and incommensurable.

How can a social system already under the strain of compensating for economic losses also negotiate between conflicting NELD for two different societies? Will the law need to develop certain presumptions that prioritize some groups over other groups? For example, media reports in the case of the Kiribati land purchase have been quick to highlight a potential conflict

39. Christopher Pala, *The Island Nation that Bought a Back Up Property*, THE ATLANTIC (Aug. 21, 2014), <https://www.theatlantic.com/technology/archive/2014/08/The-Island-Nation-That-Bought-a-Back-Up-Property/378617/> [<https://perma.cc/T586-Y7WS>].

associated with Kiribati's purchase of its estate in Fiji. The estate is not a "terra nullius" but in fact is presently home to 270 Solomon Islanders who moved there in the 1940's when they converted to Christianity. Should these 270 residents with recent historical ties to the land based on allegiance to the church receive compensation for NELD as a result of being displaced because of the Kiribati land deal that probably would never have happened except for the predictions that climate change will compromise Kiribati as a nation-state?

VI. NON-HUMAN LOSSES

As with individual human losses and social losses, non-economic losses tied to non-human survival are poorly compensated. In addition to humans migrating in the face of warming temperatures, animals are in the process of migrating. Some species are able to successfully make transitions, others are predicted to go extinct. A United Nations report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services suggests that rapid environmental changes driven in part by climate change may be increasing the rate of species extinction.⁴⁰

Legal systems are not well prepared to deal with these types of losses. Some legal systems have a concept of natural resource damages that are not based on the ecosystem uses of animals and habitats. Instead, the damages are valued by trustees on behalf of the public. For example, natural resource damages are available in the United States under both the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Oil Pollution Act of 1990 (OPA). Under both acts, "natural resources" is defined broadly to include resources held in trust for the public such as land, fish, and wildlife.⁴¹ "Damages" are defined to include the cost of restoring injured resources to their baseline condition, as well as compensation for the interim loss of injured resources pending recovery through restoration to their baseline conditions.⁴² Natural resource damages assume that there

40. IPBES, *Global Assessment Report on Biodiversity and Ecosystem Services*, (May 29, 2019), <https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services> [<https://perma.cc/99EU-VBY3>].

41. 42 U.S.C.S. § 9601 (LEXIS through Pub. L. No. 116-66); 33 U.S.C.S. § 2701 (LEXIS through Pub. L. No. 116-66); Oil Pollution Act of 1990 § 1001(20), 33 U.S.C.S. § 2701(20) (LexisNexis, Lexis Advance through Public Law 116-66, approved Oct. 31, 2019); Comprehensive Environmental Response, Compensation, and Liability Act of 1980 § 101(16), 42 U.S.C.S. § 9601(16) (LexisNexis, Lexis Advance through Public Law 116-66, approved Oct. 31, 2019); CERCLA § 101(16); OPA § 1001(20); CERCLA § 101(16); OPA § 1001(20).

42. 15 C.F.R. §§ 990.20, 990.30 (Lexis Advance through the Nov. 6, 2019 issue of the Federal Register. Title 3 is current through Aug. 30, 2019); 43 C.F.R. § 11.80 (Lexis

will be recovery within a system. Typically, such a recovery would resemble the baseline condition for an ecosystem. In the case of possible extinctions or the movement of species from an ecosystem, it will be hard to achieve a baseline condition. There may be species that can be substituted as part of the recovery of an ecosystem but that raises questions about the adequacy of “natural resource damages” where the NELD aspect of loss must be the recognition of the end of a species as a wild animal.⁴³

Taken together, three of the major categories of NELD—human lives, social communities, and non-humans—lack adequate measures for addressing loss and damage within the existing legal system. Human lives cannot be easily valued because a human is far more than simply an economic actor with a price tag based on their productive work. It is this inability to commodify lives that make personal grief so difficult to cope with—many losses connected with individuals are outside the logic of economics. Likewise, compensating for social losses is a legally impossible task. How do you provide remedial relief for loss of history or tradition? How do you value the loss of a lived language when speakers of a language become widely dispersed as a result of a climate-change related disaster? Our legal system can address certain types of immediate social losses by providing support for rebuilding of communities, but is not fit to respond to long-term losses of identity or autonomy. Finally, attempting to address non-human losses requires first an understanding of the extent of these losses, which is difficult to assess in many places because there have been no systematic ecological studies. Given the pressures associated with warming on certain communities and species, it may be impossible to use existing models of loss and damage to prevent displaced communities from fragmenting or recover ecological landscapes. Where does that lead communities in terms of NELD? The final section suggests that perhaps NELD cannot be addressed by existing legal systems because the tools that we have at our disposal seek to compensate for that which cannot be compensated. Injunctive relief in the form of stopping emissions might be relevant to reducing the amount of NELD but current political processes signal a reluctance among States to radically restrict emissions. At best, States are seeking a variety

Advance through the Nov. 6, 2019 issue of the Federal Register. Title 3 is current through Aug. 30, 2019).

43. There is discussion of genetic rewilding with scientists working on recovering genes of extinct animals and deploying technology as part of a “de-extinction” project. See, e.g., Ben J. Novak, *Passenger Pigeon Project*, REVIVE & RESTORE, <https://reviverestore.org/about-the-passenger-pigeon/> [<https://perma.cc/8PZH-R729>] (last visited Nov. 9, 2019).

of technical fixes. If NELD does not seem a proper subject for law, then we need alternative approaches that are not grounded in legal frameworks of redressability. This last section examines a series of social values that if held in common might be better at addressing NELD than the current proposals emerging from the Warsaw International Mechanism.

VII. BEYOND THE FUNCTIONALITY OF LAW: ROLE FOR “COMMUNITY COMPASSION”

Law is a poor tool for considering the “context-dependence” of non-economic values.⁴⁴ While an exercise in identifying categories of NELD under an existing legal practice such as environmental impact reporting may be important in triggering mitigation efforts to avoid further NELD, the efforts to avoid NELD must include more than simply a litany of incommensurable losses. There needs to be a normative shift beyond regulation or incentivizing.

The purpose of seeking to identify NELD should not be for purposes of attempting to assign compensation amounts, albeit this may be an outcome of identification, but to demonstrate the profound changes to humanity and perhaps proactively stop projects that are likely to have NELD consequences. We have reached a brink where States have wholesale failed citizens by not adequately governing the climate system as a commons. To the extent that law is a product of a State and is limited in its scope of application to legal subjects, it will not be able to address the intrinsic concern of citizens e.g. loss of real community. What is needed is behavioral change in the form of community compassion for others. This places response to the impacts of NELD on individuals across the globe not just within the jurisdictional boundaries of a given State. “We the peoples” of the United Nations have obligations to each other to alter cultural courses.

Part of what is needed in terms of individual responses is a reminder that climate change impacts do not discriminate based on social status. There is a strong element of chance in which coastal communities will face the brunt of climate change impacts. While insurance can manage real property losses for those who are fortunate to have an insurance scheme as a safety net, citizens as citizens must help other citizens to recover what matters most in a community and must help each other through an individual and social grieving process when what is lost can never be replaced. This requires a very different approach to globalization which has largely been an economic enterprise. Instead of seeking cross-border connection as a growth strategy, individuals need to seek cross-border connection in pursuit of re-humanization process that recognizes “interdependent co-arising”

44. OLIVIA SERDECZNY ET AL., *supra* note 26, at 21.

where we understand that our destinies are tied to others who will never meet.⁴⁵ We materially thrive in our lives because someone in another part of the world is able to survive. Yet, many Westerners fail to recognize how parochial individuals have become when thinking about climate losses; individuals speak of global climate change but expect some external entity (e.g., World Bank, national government, insurance company, civil society group) to react in times of adversity.

The idea of reviving or building a “community compassion” is not a call for individual or group vigilance to each and every climate impact that is unfolding. It is less a call for action than perhaps a call for non-action. When individuals take stock of the types of social choices they are making or that have been made for them, there is the potential for building “community compassion” through self-awareness. How do individual choices contribute to NELD or create the conditions for NELD? Should we be walking more not just for ourselves but for others? Should we be foregoing recreational opportunities that are fossil-fuel driven not for the purpose of self-sacrifice but in the interest of others? Should we be eating less meat not for our own health but for the health of others? Should we be rejecting certain jobs, e.g., representing fossil fuel companies or other industries contributing to climate impacts not because we don’t need a livelihood but because we are interfering with millions of other livelihoods? Focusing on understanding behavioral motivations and choices at the individual level is a very different bottom-up approach from the top-down approach adopted by the United Nations to evaluate and incorporate aspects of NELD into state-implemented impact assessment.

To make progress on an abstract goal of developing “community compassion”, there is a need for focused education initiated by a variety of social actors including religious institutions, schools, and civil society groups on individual compassion practices and what it means to co-exist in community. It is conceivable that one might legally mandate programs, but a mandated program would only be as strong as its normative base. This is an ambitious project far beyond what States presently expect from the Warsaw International Mechanism. Nevertheless, these are times where the current structures associated with the rule of law are proving too limited to respond to potential losses of lives that are not just statistical lives, losses of social networks, and losses of non-human lives.

45. BUDDHIST VIRTUES IN SOCIOECONOMIC DEVELOPMENT, ICDV CONFERENCE VOLUME, THAILAND, May 12–14, 2011.

Researchers predict that human impacts some of which will manifest as climate change will continue to accelerate.⁴⁶ The international plans we have made to slow this acceleration such as the Paris Agreement are faltering and NELD is already happening.⁴⁷ Some are looking towards technology as the buffer between life as we know it and an increasingly uninhabitable world. Untested technology has risks.⁴⁸ We may not need, however, a technical or legal expert approach to NELD if this generation of humans is capable of some degree of compassion. There is wise advice to be had in the words of author Anne Lamott about how we might approach ethical change:

Mercy is radical kindness. Mercy means offering or being offered aid in desperate straits. Mercy is not deserved. It involves absolving the unabsolvable, forgiving the unforgivable. Mercy brings us to the miracle of apology, given and accepted, to unashamed humility when we have erred or forgotten. . . . Mercy, grace, forgiveness, and compassion are synonyms, and the approaches we might consider taking when facing a great big mess, especially the great big mess of ourselves—our arrogance, greed, poverty, disease, prejudice. It includes everything out there that just makes us sick and makes us want to turn away, the idea of accepting life as it presents itself and doing goodness anyway, the belief that love and caring are marbled even into the worst life has to offer.⁴⁹

What does it mean that we have NELD attributable to climate change and no good legal approach? It means that we are reaching the limits of law as a social practice, but we have the freedom to pursue other value-based approaches. Decisions to change reside in the individual both as an individual but also as a member of a society. Change is possible with individuals coming to realizations about their behaviors and attitudes, but change will come much more quickly with appropriate leadership. May future leaders at global, national, community, corporate and every other conceivable governance level embrace the interdependence of communities and shape social action accordingly. The alternative is to accept NELD as inevitable and part of our evolution or perhaps our devolution as a species.

46. Will Steffen, Paul J. Crutzen & John R. McNeill, *The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?*, 36 *AMBIO* 614 n.8, 618–19 (2007).

47. Lewis C King & Jeroen C J M van den Bergh, *Normalisation of Paris agreement NDCs to enhance transparency and ambition*, 14:8 *ENVTL. RES. LETTERS* 1, 7–8 (July 26, 2019), <http://doi.org/10.1088/1748-9326/ab1146> [<https://perma.cc/6QXM-N32S>].

48. NATIONAL ACADEMY OF SCIENCES, REPORT IN BRIEF: CLIMATE INTERVENTION, CARBON DIOXIDE REMOVAL AND RELIABLE SEQUESTRIAN REFLECTING SUNLIGHT TO COOL EARTH (2015), <http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/climate-intervention-brief-final.pdf> [<https://perma.cc/AT8V-VDFY>].

49. ANNE LAMOTT, HALLELUJAH ANYWAY: REDISCOVERING MERCY 10–11 (Riverhead Books 2017).