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Loss & Damage from Climate Change: A Maturing Concept in Climate Law?

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Abstract

In this article we examine legal perspectives on remedies for harm caused by climate related loss and damage. We start by discussing the meaning of loss and damage, and its relationship to climate mitigation and adaptation. We then consider, at a conceptual level, how those harmed by loss and damage from human-induced climate change may pursue remedies against those who have contributed to the harm suffered.

Key Policy Insights

- Loss and damage is an issue that requires the attention of law and policy makers at domestic and international levels
- While existing legal systems are unlikely to be adequately equipped in their present form to respond adequately to claims to remedy harm caused by loss and damage, they will be challenged to evolve over time to respond more effectively
- Legal systems will be challenged to identify appropriate claimants, appropriate respondents, appropriate remedies and actionable wrongs
- Different legal systems will make different choices on these critical issues.

Introduction

Efforts to deal effectively with loss and damage (L&D) in the UN climate regime, and to provide for avenues to remedy associated harms, have so far failed (Siegele, 2017, Lees, 2017). While these efforts are ongoing, it is becoming increasingly clear that a broad range of international regimes and domestic legal systems will be challenged to respond to calls for appropriate remedies for those harmed by L&D. In this paper, we explore, at a conceptual level, the many

issues that will arise as legal systems around the world are confronted with L&D claims. To provide some context for this analysis, we start in this introduction with a high-level overview of issues related to the scope and definition of L&D.

L&D is not defined in the UN climate regime. It has been suggested in the literature, however, that the phrase ‘loss and damage’ recognizes two categories of harm. One category involves permanent harm, or irrecoverable ‘loss’, such as the loss of landmass from sea level rise. The second category involves reparable or recoverable ‘damage’, such as shoreline damage from storms (CDKN et al., 2012; Morrissey & Oliver-Smith, 2013; Nishat, et al., 2013). Other ways the concept of L&D has been delineated is between economic and non-economic L&D, and between slow onset and extreme weather events (Fankhauser et al., 2014; Stabinsky & Hoffmaister, 2012). The focus has been on harm caused by human-induced climate change itself. A more controversial category of harm associated with climate change not clearly falling within the definition of L&D is harm caused by response measures, including by mitigation efforts, adaptation, and geoengineering.

A set of concepts that may help to further clarify the meaning and scope of L&D are the terms ‘avoided’, ‘unavoided’, and ‘unavoidable’ L&D, introduced by Verheyen (2012, p. 6) in one of the earlier research reports on the issue. ‘Avoided’ refers to the climate impacts prevented by existing mitigation efforts. ‘Avoidable’ refers to impacts that can still be avoided through enhanced mitigation and through adaptation. ‘Unavoidable’ L&D are impacts that are not preventable through future efforts. They are already inevitable as a result of past actions and cannot be avoided even with best efforts. Unavoidable L&D is also referred to as ‘locked in’.

It is important to consider the relationship between mitigation, adaptation and L&D. It is well recognized that the level of mitigation affects the scale of L&D. The more ambitious our collective mitigation effort, the less future L&D we will suffer. The relationship between adaptation and L&D is similarly close, but more complex. Indeed, when the Warsaw international mechanism for loss and damage associated with climate change impacts (WIM) was established, it was placed within the Cancun Adaptation Framework. The preamble of the decision by the Conference of the Parties (COP) establishing the WIM acknowledges that L&D arising from climate change ‘includes, and in some cases involves more than, that which can be reduced by adaptation’ (Siegele, 2017, p. 226; Lees, 2017; UN, 2014).

Adaptation efforts are critical to reducing the amount of L&D caused by climate change. Much can be done to assist those affected by climate change, both human and natural systems, to adapt. Adjustments to agricultural and forest management practices to deal with changes in temperature or precipitation patterns are among the many examples. Of course, not everyone affected by climate change has the necessary capacity, resources or other means to maximize adaptation opportunities. This means that there may be theoretical opportunities to avoid L&D through effective adaptation that are not realized (Van Den Homberg & McQuistan, 2019). This, in itself, makes it difficult to draw a clear line between adaptation and L&D.

The issue of displacement is illustrative of the complex inter-relationship between adaptation and L&D. If we take a hypothetical small island state that is unable to protect some or all of its territory from sea level rise, one might be inclined to view this as a failure of adaptation, and the

resulting impact as L&D suffered by the residents of the affected small island state. However, the failure to protect its territory could either be as a result of technical adaptation limits, or it could be related to the lack of financial resources to implement the necessary measures. Furthermore, how the small island state itself (in case of internal displacement) and the global community (in case of external displacement) responds to the loss of territory will ultimately affect the scale and distribution of the resulting harm. How much say do those displaced have over the preferred solutions? To what extent do the solutions cause L&D to others adversely affected by these solutions? To what extent do the solutions offer opportunities either to those displaced or to those who receive them? Is the focus on individual impacts or on collective L&D, such as loss of culture and community? Are efforts to find solutions for displaced persons to minimize their individual or collective L&D considered adaptation, or is adaptation limited to efforts to preserve the territory of the small island state (Mayer, 2014; UN, 2014, McNamara, 2018)? These are among the issues that arise in efforts to understand and delineate the complex relationship between adaptation and L&D.

Efforts under the UN climate regime to fully integrate L&D into the finance, transparency and stocktake elements of the Paris Agreement have been met with strong resistance from key developed countries. This has important implications for the consideration of L&D in the future, particularly its role in the 5-year review cycles under the Paris Agreement designed to increase ambition over time. The future of the issue within the UN climate regime generally remains uncertain, and the prospects for addressing funding needs to actually address L&D remain bleak. The focus, for now, will continue to be on improving understanding of the challenge, and to explore non-monetary avenues to help Parties manage the impacts (UN, 2018; Siegele, 2017; Lees, 2017).

Attention to what avenues might exist outside the UN climate regime to pursue remedies for L&D leads to a wide range of conceptual questions that will be the primary focus of this paper. For example, within the climate regime, one might presume that the actors seeking remedies for L&D (if, indeed, remedies were to be available) would be states, although initial discussions tended to treat ‘vulnerable countries as populations’, rather than states (Mayer, 2014). Similarly, under the climate regime, it has been presumed by most Parties, at least for now, that those who might have a responsibility to fund L&D are also states (Gewirtzman et al, 2018; Siegele, 2017). Outside the climate regime, this clearly cannot be presumed.

As perspectives on L&D from outside the climate regime are considered, attention shifts to a wide range of actors and institutions, and new areas of law, that are all potentially relevant to the search for remedies. For example, what is the relevance, if any, of migration and refugee law, disaster law, law of the sea, or international human rights law, to the question of L&D for climate harms? What is the relationship between L&D, and climate justice? Many areas of law will be challenged to deal with L&D, and as a result, the issue needs to be considered from a great variety of perspectives.

Legal perspectives on the Future of Loss and Damage

In this section, we consider L&D through the lens of potential legal and related strategies for

those who have experienced climate harms. Specifically, we consider different ways to frame the harm suffered, potential actionable wrongs, remedies, and parties to a L&D dispute. We draw on experience to date from climate litigation and legal concepts drawn from other contexts such as insurance, which aims to spread risk while providing the insurer with the ability to sue a third party to recover costs paid out. However, the aim here is conceptual, in recognition of the fact that law must evolve to address climate L&D challenges, and domestic laws will differ from jurisdiction to jurisdiction. In many areas of law, it may be too early to predict the direction that litigants, courts, and law makers will take. The aim therefore is to explore options rather than to predict specific directions, approaches or outcomes in specific domestic or international legal systems. We have also consciously chosen not to adopt a particular theory to inform our exploration of L&D. However, as appropriate, we observe that some legal and related strategies will align more closely with climate justice or human rights-informed approaches to L&D, while others will suggest the potential of transnational or multi-level governance. Attention will also be paid to key foundational concepts such as climate vulnerability and adaptive capacity.

(1) Framing the Harm Suffered

Whether it is in the context of the WIM, insurance, funding mechanisms or liability, defining harm from L&D resulting from climate change will be critical. The approach taken to delineating harm from L&D will undoubtedly vary depending on the context, including whether the harm is reversible, whether it was avoidable, and perhaps whether it can be expressed in monetary terms. Moreover, courts faced with claims might reach a different conclusion on what constitutes L&D than an insurance or compensation scheme set up to protect farmers in a developing country from the risk of drought or flooding, for example.

One of the challenges will be to separate harm linked to anthropogenic climate change from other sources of the harm experienced. Extreme weather events such as wind storms will be amplified by climate change, but in many cases will not be solely attributable to it. Similarly, harm associated with heat waves, droughts, floods, coastal erosion, melting permafrost, melting ice, or warming oceans will be exacerbated, but may not always be solely caused, by climate change (IPCC, 2014, 2018). Health impacts may face similar challenges, depending on whether climate change introduces a whole new health risk (such as the introduction of a disease to a region) or exacerbates an existing risk (such as health impacts of heat waves) (WHO, 2018). Separating the impact of climate change on such harm will be among the challenges of dealing fairly with harm from L&D (Marjanac et al., 2017).

Harm related to displacement illustrates the challenge of separating harm linked to climate change from other sources of the harm. Consider a farmer in a developing country who is internally displaced after successive years of crop failure. The farmer's plight may have been significantly influenced by climate change-induced droughts, flooding, storms or other changes to the climate system, but they may have also been influenced by changes in markets for the crops grown, unavailability of manual labour, or financial mismanagement of the farm.

The challenge of separating climate related harm from other sources of harm is, of course, not limited to harm that arises directly from the impacts of climate change. Similar issues arise with respect to harm caused by response measures to climate change, such as geoengineering. If ocean

fertilization is attempted, for example, to increase the carbon uptake of the world's oceans, such efforts have the potential to cause harm to those depending on ocean resources. A key challenge will be to decide which harms related to climate response measures to include under the concept of L&D, such as whether to include those affected by an inequitable transition or otherwise harmed by efforts to mitigate climate change.

A key potentially unifying concept in this regard will be how to separate L&D from baseline conditions. The details will vary, but in each case the harm will have to be assessed against what would have happened without anthropogenic climate change (Allen et al., 2007). The nature of the harm, whether slow onset or arising from an extreme weather event, will obviously be relevant to this assessment. Moreover, as part of this process, it will be crucial to address the temporal dimension when selecting the baseline conditions against which climate harms are to be measured: are harms to be measured from the beginning of the industrial revolution?

Arguments might be advanced that the baseline for measuring climate L&D should be the start of global efforts to reduce emissions in 1990, or the moment at which global temperature increases surpass the Paris Agreement's 1.5 (or well below 2) degree goal. A related consideration is whether future harm will be included in the assessment of harm. If so, projections of future harm will be significantly dependant on mitigation efforts. More generally, it is far from clear whether the legal systems challenged to deal with harm from L&D need to prepare for harm caused by a 1.5 degree world, or 2, or 3, or perhaps even 4 or 5 degrees Celsius (Climate Action Tracker; IPCC, 2014, 2018)

Another key consideration is whether L&D will include only those impacts that have economic consequences, or whether it will extend to non-economic impacts, including cultural harms to indigenous peoples, for example (Fankhauser et al., 2014, Serdeczny, 2018). Clearly, from an indigenous environmental justice perspective, it will be essential that cultural dimensions of harm are acknowledged and included in L&D claims (Tsotsie, 2007; Watt-Cloutier, 2016). Other questions remain. For example, will claims for L&D include loss of state territory due to sea level rise or even loss of statehood (Rayfuse & Crawford, 2011)? Would L&D to natural systems be viewed as harms that warrant a remedy? Answering these questions might involve evaluating the benefits provided to humans by ecosystem services, including those which underpin human livelihoods, as well as the ethical considerations of human-induced harms to non-human species (Diaz, 2018; UNEP, 2016; Zommers et al., 2014).

(2) Potential Claimants

Closely related to the question of harm is who should be able to claim a remedy. The question of who has experienced harm will often arise in the context of litigation, but can also surface in the context of insurance and funding mechanisms set up to compensate victims. Entities that may experience harm as a result of unavoided L&D include states, sub-national government actors, as well as a variety of non-state actors ranging from individuals to organizations and communities. Examples of non-state actors who may be disproportionately impacted by L&D include indigenous and non-indigenous communities, migrants and refugees, children, women, and other vulnerable members of societies. Harm is, of course, not limited to humans, but includes human property as well as nature, from individual vulnerable species to whole ecosystems.

Not every entity potentially harmed by unavowed L&D will necessarily be entitled to a remedy. Any institution or legal regime that is asked to deal with unavowed L&D will be challenged to determine who will be eligible to seek a remedy; questions of legal standing will thus become important (Stone, 2010). Where those eligible include children, future generations and non-humans, questions arise as to who will be able to seek a remedy on their behalf.

A related consideration is whether L&D should be conceptualized as private harms (to individuals or groups in their private capacity) or as public harms (to societies as a whole, including future generations, or to public goods like ecosystems), or both. The global and transnational scale of climate harms further suggests that insights as to the nature of claimants from both public and private international law will be relevant, alongside those from domestic legal systems.

For example, it is clear that states are harmed by climate change, with some states, notably small island developing states (SIDS), being particularly vulnerable. International tribunals, such as the International Court of Justice (ICJ), the International Tribunal for the Law of the Sea (ITLOS), and the Permanent Court of Arbitration, may grant standing to states who may bring claims for violations of their rights under international law (Bodansky, 2017; Strauss, 2009; Voigt, 2016).

Alternatively, the concept of *erga omnes* obligations at international law suggests that claims could be brought by one or more states on behalf of the international community as a whole for harm to the climate system or areas beyond national jurisdiction (Brown & Seck, 2013; UN, 2001, art. 48). A public international law perspective that conceptualizes L&D as a crime would not obviously provide an opportunity for plaintiff states to bring L&D claims to the International Criminal Court, although prosecution of climate crimes has garnered scholarly and activist attention (Centre for Climate Crime; Ecocide Law Expert; Gallmetzer, 2017; Jodoin & Saito, 2011). If conceptualized as crimes, domestic statutes that implement international criminal law raise a theoretical opportunity for domestic prosecution of climate crimes, or, where parallel civil liability regimes exist, for individuals and groups that have experienced climate harms to seek a civil remedy (Wanless, 2009).

Private international law also offers insights into the nature of potential plaintiffs in transnational civil liability actions. For example, in many jurisdictions, foreign plaintiffs may bring claims provided that there is a real and substantial connection to the jurisdiction in which the action is brought. The presence of the defendant in the jurisdiction would often be a presumptive connecting factor, although judges may have discretion to decline to exercise jurisdiction on the basis of *forum non conveniens* or similar doctrines (see generally Amnesty International, 2014; Byers et al., 2017; Seck, 1999). Another procedural consideration of relevance to delineating the plaintiffs in L&D litigation is the use of class action certification, which allows an individual plaintiff to file an action on behalf of themselves and others who are similarly situated. This access to justice mechanism is already in use in youth climate litigation (e.g. Trudel, Johnston & Lespérance). In the future, questions may arise as to whether or how to delineate a global class in a L&D case, as has been the case in the consumer protection context, for example, where all consumers who suffered the same harm may be able to recover from a single settlement agreement. (e.g. Global Class Actions Exchange; Clopton, 2018).

A different issue may be whether particularly vulnerable claimants should be given priority to claim a remedy over claimants who are in a more privileged position, and if so, how this might be achieved. For example, if any vision of climate justice is to be taken seriously, access to justice for L&D for the most vulnerable must be a priority. (Adelman, 2016; Humphreys, 2014). It appears problematic, then, that comparatively privileged claimants who reside in a developed country that is also the home state of a corporate fossil fuel defendant, should face fewer legal hurdles than those that would confront a more climate-vulnerable plaintiff who happens to reside in a least developed country where no comparable defendant company has sufficient presence to ground jurisdiction. This is particularly problematic as those who reside in a least developed or most vulnerable country context may also face a lack of governmental capacity to offer adequate remedies to those who suffer from L&D. Moreover, individuals within these vulnerable states may be those who have contributed least to the climate problem on a per capita emissions basis, may not have benefited from economic and social wellbeing built up over years of fossil fuel extraction, or may live in isolation from the economic engine that drives greenhouse gas (GHG) emissions, as is the situation with many indigenous communities. Ultimately, the question is whether everyone should be entitled to L&D remedies, or whether access to climate justice should only – or first – be available to vulnerable groups within developing countries, or perhaps to the south within the north (e.g. indigenous peoples). In an ideal world, it would be possible to adequately compensate all who suffer harm, or otherwise provide a remedy. In our very imperfect world, however, it is more likely that defendants will seek bankruptcy protection before full compensation has been paid out – if any has been paid at all (Benjamin et al, 2019). Furthermore, is there a duty on claimants to take steps to mitigate climate harms? In cases where such a duty is found to exist, a follow-up consideration is the extent of such a duty. For example, would a person suffering harm from climate change have a duty to relocate? Under what conditions? Different legal systems can be expected to reach different conclusions on these difficult questions, yet a lack of coordination among jurisdictions may leave the most vulnerable without access to justice.

(3) Potential Remedies

Another challenge for legal institutions and regimes in responding to unavoided L&D is to consider appropriate remedies. It is clear from the work under the WIM that only some harm resulting from unavoided L&D can be adequately quantified in economic terms (UNFCCC, 2014). This will challenge the ability of legal institutions to offer appropriate remedies, and will result in increasing pressure to expand the range of remedies beyond monetary compensation. Already, we are seeing climate litigation seeking a range of remedies, including declarations and various forms of injunctions to prevent undesired, or mandate desired, action. The case of *Urgenda v The Netherlands* [*Urgenda*] (2015), where the court imposed a minimum emission reduction target on the government of the Netherlands, serves to illustrate what lies ahead. Legal systems will increasingly be challenged to consider a broad range of remedies, including restitution, satisfaction and other forms of reparation (Burkett, 2009).

Diverse legal approaches may lead to monetary damage awards. For example, fines imposed as a result of successful criminal or regulatory climate prosecutions could be deposited in environmental damages funds to be distributed to victims (Government of Canada, 2018). Where

climate remedies are pursued through a civil action, it is possible that punitive damages could be awarded. For climate litigation involving a transnational dimension, it is more likely that a monetary damage award would be recognized and enforced by a foreign court than a non-monetary judgement (Amnesty International, 2014; Byers, et al., 2009; Seck 1999).

If the distinction between loss as irreversible and damage as reversible is accepted, it may be useful to consider, separately, appropriate remedies for each. Legal systems will be challenged to consider whether and how to monetise harms such as loss of ecosystem services, loss of species, and loss of opportunity for children and future generations (Collins, 2014; Lord, 2012). An additional complication is whether funds or support would be available for professional evaluation as to the existence and nature of these types of harms, such as assessment of habitat loss and recovery for species at risk, as well as compensation for losses while habitat recovers (Desierto, 2018). Drawing upon resilience theorists and others, would funding or support for recovery from L&D necessarily mean returning people to a place from which they came, or rebuilding ecosystems to the state that they were 'before' (assuming a precise time can be identified)? Or would L&D be reconcilable with the transformation of socio-ecological systems from one state to another? Given the unique characteristics and constraints of the wide range of regimes challenged to deal with L&D, one must expect a range of approaches to these difficult questions. Legal systems that are able to devise effective remedies for L&D will have the potential to contribute to more fundamental societal transformations essential for resilient futures (Morrissey & Oliver-Smith, 2013; Wrathall et al., 2015).

Litigation is only one avenue through which to seek a remedy. Others include compensation funds and insurance mechanisms. For example, crop insurance can offer remedies to farmers who may still be able to continue farming, but who face some risk every growing season that their crop will be harmed or destroyed by climate-induced extreme weather events such as flooding, drought or storms. Another example could be that of SIDS, who might be best served through a combination of disaster risk reduction and management funds, risk transfer through insurance, and ultimately compensation and rehabilitation (Burkett, 2015).

A final consideration is the relationship between geoengineering and L&D. Might arguments be made that geoengineering to reduce GHGs in the atmosphere or oceans should be understood as the equivalent of clean-up of environmental contamination or remediation of environmental harm? This possibility forces us to ask who should get to decide (and how should decisions be made) about the appropriateness of steps to reduce L&D, and the harm that may result from such steps. In a traditional environmental enforcement action, measures taken to reduce the extent of environmental harm and to quickly clean up the harm, may inform whether or not a (potential) offender is prosecuted, whether or not they meet a due diligence or reasonable care defence, and whether or not they are subject to a harsh or lenient penalty in sentencing. How could these concepts be adapted to the problem of climate L&D?

(4) Potential Defendants and Sources of Funds

Just as there is a broad range of possible plaintiffs seeking a remedy for harm resulting from unavoided L&D, there are many possible defendants. To date, defendants in climate litigation have included governments, companies that have contributed significantly to GHG emissions,

and companies that have actively hindered the development and implementation of effective climate policies (e.g. Adler, 2018; Ganguly et al., 2018; *Leghari v Pakistan*, 2015). Who will be an appropriate defendant will vary depending on the harm, the legal system called upon to provide a remedy, and the conduct that contributed to the harm. States, state actors, state owned enterprises, international organizations, and private actors are all potential defendants depending on the nature of the harm, the plaintiff, the legal system involved, and the remedies sought. Identifying appropriate defendants will be among the critical issues to be resolved for any legal system challenged to deal with liability or compensation for L&D, one that is closely connected to the issue raised in the following section, the question of the actionable wrong.

From a public international law perspective, defendants in actions brought before international tribunals like the ICJ must be states or international organizations, although in specific circumstances private actors may be subject to the jurisdiction of the deep seabed chapter of ITLOS (Stephens, 2009, p. 44). International civil liability treaties in areas such as oil pollution at sea, or nuclear accidents, on the other hand, while not directly applicable, could in theory offer inspiration for climate L&D litigation against multinational enterprises, or models for the creation of compensation funds with levies payable by polluters. (Brown & Seck, 2013; Lyster, 2015).

If claims were brought in international courts or tribunals alleging climate harms against perpetrator states, it would be necessary to identify which states to target. Would the most appropriate defendant states be determined based on historic emissions by state, or would per capita calculations be relevant? Would emissions trading under the climate regime be relevant to the determination of a state's cumulative GHG emissions? What relevance, if any, would be given to a state's nationally determined contribution (NDC) under the Paris Agreement? Would it matter if a state met its targets, and if the targets were adequate, a 'fair share' of emissions for a 1.5 degree world? Would arguments be made that emissions associated with the production of goods for export should be attributed to purchaser countries? Would all actions of the state since the start of global efforts to address climate change around 1990 be relevant?

Beyond this, while some states have accepted compulsory jurisdiction of the ICJ, for example, others have shielded themselves through reservations (see Strauss, 2009 for the challenges associated with climate litigation at the ICJ). Another question might be whether international organizations could be defendants in international climate actions brought in domestic or international tribunals: could it be argued that the World Bank has contributed to climate L&D through its continued support for fossil fuel development around the world? (see *Jam v International Finance Corp*, 2019 finding the IFC has limited immunity and the commercial activity exception applies).

Prosecutions of international criminal law are designed to be brought against individuals rather than states, and corporations remain beyond the reach of international criminal justice for now. Transnational civil litigation in the climate context could be brought against a wide range of defendants, although challenges might arise due to legal doctrines of separate corporate personality that favour entity over enterprise liability except in exceptional circumstances (e.g. Chambers & Vastardis, 2018; *Yaiguaje v Chevron Corporation*, 2018; but see *Vedanta Resources PLC v Lungowe*, 2019). A related challenge is how to bring claims in foreign courts

against states or state-owned enterprises that might challenge the exercise of jurisdiction on the basis of the act of state doctrine, or comity of nations (*Araya v Neysun*, 2017; Seck, 2017, p. 404). Heede's 'carbon majors' research, which has been relied upon in the Philippines climate petition, recognizes that while the 'private' investor-owned carbon majors have contributed greatly to GHG emissions since the beginning of the industrial revolution, so have state-owned enterprises and nation states (Greenpeace, 2015; Heede, 2013; Seck, 2017).

Clearly, evidence of attribution of harm will be crucial to identifying possible defendants, but in the climate context, complexities abound. How should the responsibility of a carbon major be measured? Should responsibility (and liability) be measured purely on the basis of contributions to global emissions, or is it relevant where that carbon major is based and the 'carbon budget' that its home state might be equitably allocated (as its 'fair share') (Expert Group, 2018)? Would a defendant multinational enterprise be liable for all emissions arising from the enterprise as a whole, or would separate legal personality of corporate entities and the contractual nature of supply and value chain relationships inhibit legal responsibility?

Different issues might arise in the identification of those most appropriate to contribute to international funds, even as contribution does not equate with a finding of legal liability for climate L&D. For example, it has been suggested that a levy on international airline passengers or bunker fuel used in marine transport, or even a fossil fuel majors carbon levy, could serve to gather funds necessary for L&D (Some of these are explored in Durand et al., 2018). Of course, not all ideas put forward to finance or insure climate remedy and compensation require the identification of a defendant-like contributor. For example, suggestions have been made to impose a financial transaction tax to fund L&D (Durand et al., 2018) while other commonly proposed insurance and finance tools include risk pooling, risk transfer, catastrophe risk insurance, contingency finance, climate themed bonds, and catastrophe bonds (Durand et al., 2018). Concerns have been raised that some of these mechanisms would place the burden of purchasing coverage upon the most vulnerable, rather than making the polluter pay (Burkett, 2009).

(5) Actionable Wrongs

Closely connected to the selection of appropriate defendants (or persons potentially responsible for proving the remedy) is the issue of the actions, omissions, or actionable wrongs that would hold the defendant responsible for contributing to the remedy. At one end of the spectrum, the 'wrong' may simply be the GHG emissions a company or state is responsible for (Heede, 2013). A L&D fund or insurance scheme, for example, could be set up on a no-fault absolute liability basis, similar to the oil pollution funds set up to contribute to the clean-up of oils spills caused by tanker traffic (Lyster, 2015).

Actionable wrongs, however, can take a range of forms. Exxon, for example, is being sued in the US for misleading investors about the risk climate change poses to the company (*People of the State of New York v Exxon Mobil*, 2018). A range of actionable wrongs are conceivable, ranging from lobbying against climate action domestically or internationally to funding others to undermine climate action. Some non-governmental business organizations funded by the fossil

fuel industry, for example, have had a reputation of working to undermine consensus and ambition at the UN climate negotiations for years. Actions to mislead the public or governments about the science of climate change similarly could qualify as actionable wrongs similar to litigation in the tobacco context (Olszynski, 2018).

Actionable wrongs can also take the form of government action or inaction. The *Urgenda* case in the Netherlands and the *Juliana* case in the US are perhaps the most prominent examples to date, but actionable wrongs by state actors can range from the role they play in international negotiations to failing to set adequate domestic targets and failing to meet targets set. Potentially, the dismantling of effective climate policy implemented by a previous government could be an actionable wrong by a government, as could efforts to undermine global ambition through a range of possible actions or inactions within the UN climate regime or other international fora seeking to raise the ambition of global action. (*Urgenda*, 2015, *Juliana v United States*, 2016) Indigenous peoples experiencing social and cultural loss due to climate change might also claim actionable wrongs against governments and other actors whose failure to reduce emissions is equivalent to a failure to protect and respect their rights to self-determination, or other rights such as free, prior and informed consent that are recognized in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007). The consequence of these rights violations is to undermine social and cultural resilience, including the legal orders of the indigenous peoples themselves.

A difficult challenge will be to distinguish those actionable wrongs that arise in the climate context more generally from those that might be said to be specifically designed to secure a remedy for climate L&D. It has been suggested that states could implement climate liability statutes to facilitate actions brought in domestic courts against climate polluters, similar to the way in which tobacco liability statutes were imposed in certain developed countries to recoup state healthcare costs (Byers et al., 2017; International Bar Association, 2014; Olszynski, 2018). Domestic climate litigation brought by domestic plaintiffs have raised a multitude of causes of action against their own governments as well as against business actors. Yet to date, only a few examples of climate litigation integrate a transnational dimension which has implications for the framing of the actionable wrong due to questions of choice of law. For example, if a low-lying island state sues a multinational fossil fuel company in the company's home state courts, should the (tort?) law of the multinational's home jurisdiction be applied to determine whether or not the multinational committed a wrong, or should the state be able to rely instead on its own climate L&D statutory cause of action (with a reversed burden of proof and reduced evidentiary burden)?

Irrespective of the cause of action, climate litigation will need to grapple with how to allocate responsibility where multiple contributors to the harm may be identified and proof of causation is elusive. This raises the possibility of joint and several liability (where plaintiffs may recover in full against one defendant who may then seek to recover from other equally responsible defendants), or alternate theories of liability such as material contribution to risk (where multiple defendants contribute to the risk of harm but no single defendant can be proven to be the necessary cause), or market share liability (where responsibility is allocated according to the defendant's share of global emissions) (Byers et al., 2017; Collins, 2014). Other models that could account for the challenge of attributing weather events to anthropogenic emissions include

the fraction attributable risk allocation concept, drawn from epidemiological approaches, (Allen et al., 2007) or reliance on probabilistic event attribution (PEA) science (Parker et al., 2016).

Even if a plaintiff successfully argues that a defendant has committed the act necessary to find liability, defences or mitigating factors may ultimately detract from this result. How would courts address arguments that plaintiffs contributed to their own harm due to a failure to adapt? What about arguments that the plaintiff lacked capacity to adapt, or that there was a failure (by someone else?) to offer resources and other means for the plaintiff to adapt? What about ineffective implementation of adaptation measures? In the case of corporate defendants, questions could arise as to whether the defendant has met a reasonable care or due diligence defence – if so, which corporate social responsibility or climate-related industry standards might be relevant to this determination? Would proof of the establishment of an internal carbon pricing policy be seen as a mitigating factor? What about evidence of a plan to transition to carbon neutrality (such as from coal mining to wind energy)? Could evidence of misleading regulators and the public by funding climate deniers serve as an aggravating factor for punitive damages or as a separate cause of action?

Different insights emerge if causes of action are considered from the perspective of public international law. For example, a claim rooted in state responsibility would need to identify an internationally wrongful act that would be attributable to the defendant state. This could include arguments that a state's failure to regulate non-state actors to prevent climate harms could be an independent wrong in itself. State financing and support of a wrongful act by another state could also be a wrong (Brown & Seck, 2013). A state liability approach might hold a state strictly liable for environmental harm (that is, causing the harm is the wrongful act, a breach of the 'do no harm' principle) (Brown & Seck, 2013; UN, 2006).

A key question in the L&D context is how it will be determined if a state has committed a wrongful act for the purpose of state responsibility, in light of the requirements of the Paris Agreement. Are core international environmental law principles (such as do no harm) still relevant, or are they subsumed by the commitments of the Paris Agreement? What is the relationship between existing international human rights obligations to protect and ensure the realization of rights, and the commitments in the Paris Agreement (Wewerinke-Singh, 2018)? What about other treaty sources including the UN Law of the Sea with its obligations to protect the marine environment (Ohdedar, 2016)? Further, whose interpretation of contested international law norms will determine the answer to these questions? As evident from the emergence of civil society human rights tribunals like the Permanent Peoples' Tribunal on Human Rights, Fracking, and Climate Change, some would argue that the answers to these important questions cannot rest with the states and international bodies that have failed to protect the rights of the people of the world (Permanent People's Tribunal, 2018).

Conclusion

Prospects for a comprehensive solution to L&D under the climate regime are tenuous at best. This means that many international and domestic legal systems will increasingly be challenged to deal with aspects of L&D and to offer a remedy to those harmed. In this article, we have

considered, at a conceptual level, the range of issues that legal systems around the world will need to grapple with.

We have considered who might bring claims for L&D, what remedies might be sought, who the remedies might be sought against, and what the actionable wrong might be. These are issues that both domestic and international legal systems challenged to respond to claims for L&D will face. Of course, each will likely take its own unique approach, resulting in a patchwork of venues with a different mix of eligible claimants, respondents, remedies and actionable wrongs. It remains to be seen whether this patchwork will be able to eventually develop into a cohesive whole that offers appropriate remedies to all legitimate claimants.

References

- Adelman, S. (2016). Climate justice, loss and damage and compensation for small island developing states. *Journal of Human Rights and the Environment* 7:1, 32-53.
- Adler, D.P. (2018). US climate change litigation in the age of Trump: Year one. Retrieved from Columbia Law School, Sabin Center for Climate Change Law <http://columbiaclimatelaw.com/files/2018/02/Adler-2018-02-U.S.-Climate-Change-Litigation-in-the-Age-of-Trump-Year-One.pdf>.
- Allen, M., Pall, P., Stone, D., Stott, P., Frame, D., Nozawa, S.T., & Yukimoto, S. (2007). Scientific challenges in the attribution of harm to human influence on climate. *University of Pennsylvania Law Review* 155(6), 1353-1400.
- Alliance of Small Island States. (2008). *Proposal to the AWG-LCA: Multi-window mechanism to address loss and damage from climate change impacts*. Retrieved from http://unfccc.int/files/kyoto_protocol/application/pdf/aosisinsurance061208.pdf.
- Amnesty International. (2014). *Injustice incorporated: Corporate abuses and the human right to remedy*. London, UK: Peter Benenson House.
- Araya v Neysun*, 2017 BCCA 401, 419 DLR (4th) 631, on appeal to the SCC.
- Benjamin, L., Thomas, A., & Haynes, R. (2018). An 'Islands COP'? Loss and Damage at COP23. *Review of European, Comparative & International Environmental Law* 27(3), 332-340.
- Benjamin, L., Doelle, M., Jackson, C., & Seck, S. (February 22, 2019). Reflections on Orphan Well Association v Grant Thornton Ltd, 2019 SCC 5 [Blog post]. Retrieved from <https://blogs.dal.ca/melaw/2019/02/22/reflections-on-orphan-well-association-v-grant-thornton-ltd-2019-scc-5/>
- Bodansky, D. (2017). The role of international court of justice in addressing climate change: some preliminary reflections. *Arizona State Law Journal* 49, 689-712.

- Brown, C., & Seck, S. (2013). Insurance law principles in an international context: Compensating losses caused by climate change. *Alberta Law Review* 50(3), 541-576.
- Byers, M., Franks, K., & Gage, A. (2017). The internationalization of climate damages litigation. *Washington Journal of Environmental Law & Policy* 7(2), 264-319.
- Burkett, M. (2009). Climate Reparation. *Melbourne Journal of International Law* 10(2), 509-542.
- Burkett, M. (2015). Rehabilitation: A proposal for a climate compensation mechanism for small island states. *Santa Clara Journal of International Law* 13(1), 81-124.
- Centre for Climate Crime Analysis (<http://www.climatecrimeanalysis.org/>).
- Chambers, R., & Vastardis, A.Y. (2018). Overcoming the corporate veil challenge: Could investment law inspire the proposed business and human rights treaty. *International & Comparative Law Quarterly* 67(2), 389-423.
- Climate Action Tracker (<https://climateactiontracker.org/>).
- Climate Development and Knowledge Network (CDKN), International Centre for Climate Change and Development (ICCCD), Germanwatch, Munich Climate Insurance Initiative (MCII), & United Nations University – Institute for Human and Environment Security (UNU-HES). (2012). *Framing the loss and damage debate: A conservation starter*. Retrieved from <https://germanwatch.org/sites/germanwatch.org/files/publication/6673.pdf>.
- Clopton, Z. D. (2018). The Global Class Action and Its Alternatives. *Theoretical Inquiries in Law* 19, 125-150.
- Collins, L., & McLeod-Kilmurray, H. (2014). *The Canadian Law of Toxic Torts*. Toronto: Thomson Reuters Canada.
- Desierto, D. (2018, February 14). Environmental damages, environmental reparations, and the right to a healthy environment: The ICJ compensation judgment in *Cost Rica v Nicaragua* and the IACtHR advisory opinion on marine protection for the greater Caribbean [Blog Post]. Retrieved from <https://www.ejiltalk.org/environmental-damages-environmental-reparations-and-the-right-to-a-healthy-environment-the-icj-compensation-judgment-in-costa-rica-v-nicaragua-and-the-iacthr-advisory-opinion-on-marine-protection/>.
- Diaz, S., Pascual, P., Stenseke, M., Martin-Lopez, B., Watson, R.T., Molnar, Z., ...Shirayama, Y. (2018). Assessing nature's contributions to people. *Science*, 359(6373), 270-272.
- Durand, A., Hoffmeister, V., Weikmans, R., Gewirtzman, J., Natson, S., Huq, S., & Timmons Roberts, J. (2018). *Financing options for loss and damage: a review a roadmap* (discussion paper). Bonn, Germany: German Development Institute.

Ecocide Law Expert, (<https://pollyhiggins.com/>).

Expert Group on Climate Obligations of Enterprises. (2018). *Principles on climate obligations of enterprises*. Retrieved from <https://climateprinciplesforenterprises.org>.

Fankhauser, S., Dietz, S., & Gradwell, P. (2014). *Noneconomic losses in the context of the UNFCCC work programme on loss and damage (policy paper)*. London, UK: Centre for Climate Change Economics and Policy – Grantham Research Institute on Climate Change and the Environment.

Gallmetzer, R. (2017). Prosecute climate crimes. Retrieved from UNEP <http://web.unep.org/ourplanet/march-2017/articles/prosecute-climate-crimes>.

Ganguly, G., Setzer, J., & Heyvaert, V. (2018). If at first you don't succeed: Suing corporations for climate change. *Oxford Journal of Legal Studies* 38(4), 841-868.

Gewirtzman, J., Natson, S., Richards, J.A., Hoffmeister, V., Durand, A., Weikmans, R., ...Roberts, J.T. (2018). Financing loss and damage: Reviewing options under the Warsaw international mechanism. *Climate Policy* 18(8), 1076-1086.

Global Class Actions Exchange, (<http://globalclassactions.stanford.edu/>).

Government of Canada. (2018). Environmental damages fund. Retrieved from <https://www.canada.ca/en/environment-climate-change/services/environmental-funding/programs/environmental-damages-fund.html>.

Greenpeace Philippines. (2015, September). Petition to the commission on human rights of the Philippines requesting for investigation of the responsibility of the carbon majors for human rights violations resulting from the impacts of climate change (Petition). Retrieved from https://www.greenpeace.org/seasia/ph/PageFiles/735291/CC%20HR%20Petition_public%20version.pdf.

Heede, R. (2013). Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers 1854-2010. *Climatic Change* 122, 229-241.

Humphreys, S. (2014). Climate justice: the claim of the past. *Journal of Human Rights and the Environment* 5 Special Issue, 134-148.

International Bar Association. (2014). *Achieving justice and human rights in an era of climate disruption: climate change justice and human rights task force report*. London, UK: International Bar Association.

International Criminal Court. (2018). Victims. Retrieved from <https://www.icc-cpi.int/about/victims>.

IPCC. (2014). Climate change 2014: Synthesis report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland: IPCC.

IPCC. (2018). Global Warming of 1.5°C – Special report: summary for policymakers. Formally approved at the first joint session of working groups 1, II and III of the IPCC and accepted by the 48th session of the IPCC. Incheon, Republic of Korea: IPCC.

Jam v International Finance Corp (S.C. 2019).

Jodoin, S., & Saito, Y. (2011). Crimes against future generations: harnessing the potential of individual criminal accountability for global sustainability. *McGill International Journal of Sustainable Development Law and Policy* 7(2), 115-155.

Juliana v United States of America 217 F.Supp.3d 1224 (D Or 2016), Aiken J.

Lees, Emma, (2017). Responsibility and liability for climate loss and damage after Paris, *Climate Policy*, 17:1, 59-70

Legal Response Initiative. (2016, April 12). Loss and damage in Paris and state responsibility. Retrieved from <https://legalresponse.org/legaladvice/loss-and-damage-in-the-paris-agreement-and-cop-decision-and-state-responsibility/>.

Leghari v Pakistan, W.P. No 25501/2015 No 1 (HC Green Bench, Pakistan, 2015). Retrieved from <http://sys.lhc.gov.pk/greenBenchOrders/WP-Environment-25501-15-31-08-2015.pdf>.

Lyster, R. (2015). A fossil fuel-funded climate disaster response fund under the Warsaw international mechanism for loss and damage associated with climate change impacts. *Transnational Environmental Law* 4, 125-151.

Lord, R., Goldberg, S., Rajamani, L., & Brunnée, J. (Eds.). (2012). *Climate change liability: Transnational law and practice*. Cambridge, UK: Cambridge University Press.

Mace, MJ and Roda Verheyen (2016). Loss, Damage and Responsibility after COP21: All Options Open for the Paris Agreement. *Review of European, Comparative & International Environmental Law* 25(2), 197-214.

Marjanac, S., Patton, L., & Thornton, J. (2017). Acts of God, human influence and litigation. *Nature Geoscience* 10, 616-619.

Mayer, B. (2014). Whose loss and damage: Promoting the agency of beneficiary states. *Climate Law* 4, 267-300.

McNamara, K. E., Bronen, R., Nishara Fernando, N., & Klepp, S., (2018) The complex decision-making of climate-induced relocation: adaptation and loss and damage, *Climate Policy*, 18:1, 111-117.

Morrissey, J., & Oliver-Smith, A. (2013). *Perspectives on non-economic loss & damage: Understanding values at risk from climate change*. Retrieved from Loss and Damage in Vulnerable Countries Initiative <http://www.eldis.org/document/A71918>.

Nishat, A., Mukherjee, N., Roberts, E., & Hasemann, A. (2013). *A range of approaches to address loss and damage from climate change impacts in Bangladesh*. Retrieved from <http://asiapacificadapt.net/sites/default/files/resource/attach/a-range-of-approaches-to-address-loss-and-damage-from-climate-change-impacts-in-bangladesh.pdf>.

Ohdedar, B. (2016). Loss and damage from the impacts of climate change: A framework for implementation. *Nordic Journal of International Law* 85(1), 1-36.

Olszynski, M., Mascher, S., & Doelle, M. (2018). From smokes to smokestacks: Lessons from tobacco for the future of climate change liability. *The Georgetown Environmental Law Review* 30(1).

People of the State of New York v. Exxon Mobil Corporation, Docket number: 452044/2018, (N.Y. Sup. Ct. 2018). Retrieved from <http://climatecasechart.com/case/people-v-exxon-mobil-corporation/>.

Parker, H.R., Boyd E., Cornforth, R.J., James, R., Otto, F.E.L., & Allen, M. (2016). Stakeholder perceptions of event attribution in the loss and damage debate. *Climate Policy* 17(4), 533-550.

Rayfuse, R.G. & Crawford, E. (2011). Climate change, sovereignty and statehood. In R. Rayfuse & S. Scott (Eds.), Edward Elgar. (2012). *Sydney Law School Research Paper No. 11/59*. Retrieved from Social Science Research Network Electronic library <https://ssrn.com/abstract=1931466>.

Seck, S.L. (1999). Environmental harm in developing countries caused by subsidiaries of Canadian mining corporations: The interface of public and private international law. *The Canadian Yearbook of International Law* 37, 139-222.

Seck, S.L. (2017). Revisiting transnational corporations and extractive industries: Climate justice, feminism, and state sovereignty. *Transnational Law & Contemporary Problems* 26(2), 383-413 (Symposium: International Environmental Law, Environmental Justice, and the Global South).

Serdeczny, O. M., Bauer, S., & Huq, S., (2018) Non-economic losses from climate change: opportunities for policy-oriented research, *Climate and Development*, 10:2, 97-101.

Siegele, L. (2017). Loss and Damage (Article 8). In D. Klein, M.P. Carazo, M. Doelle, J. Bulmer, & A. Higham (Eds.), *The Paris Agreement on climate change: Analysis and commentary* (pp. 224-238). Oxford, UK: Oxford University Press.

Stephens, T. (2009). *International courts and environmental protection*, Cambridge, UK: Cambridge University Press.

Stone, C.D. (2010). *Should trees have standing? Law, morality, and the environment* (3rd ed.). Oxford, UK: Oxford University Press.

Stabinsky, D. & Hoffmaister, J.P. (2012). *Loss and damage: Defining slow onset events* (Briefing Paper 3). Retrieved from http://unfccc.int/files/adaptation/application/pdf/tp7_v03_advance_unedited_version.pdf.

Strauss, A. (2009). Climate change litigation: Opening the door to the international court of justice. In W.C.G. Burns & H.M. Osofsky (Eds.). *Adjudicating climate change: State, national, and international approaches*, (pp. 334-356). Cambridge, UK: Cambridge University Press.

The Permanent Peoples' Tribunal, (<https://www.tribunalonfracking.org>).

Trudel, Johnston & Lespérance. Ongoing Class Actions: *Environment JEUnesse v Attorney General of Canada*. (<http://tjl.quebec/en/class-action/climate-change/>).

Tsosie, R. (2007). Indigenous People and Environmental Justice: The Impact of Climate Change *University of Colorado Law Review* 78, 1625

UNEP. (2016). *Loss and damage: The role of ecosystem services*. Nairobi, Kenya: UNEP. Retrieved from https://uneplive.unep.org/media/docs/assessments/loss_and_damage.pdf.

UNFCCC. (2014). *Report of the Warsaw international mechanism for loss and damage associated with climate change impacts* (UNFCCC document FCCC/SB/2014/4). Paris, France. Retrieved from <http://unfccc.int/resource/docs/2014/sb/eng/04.pdf>.

United Nations. (1992). *United nations framework convention on climate change* (UNFCCC document FCCC/INFORMAL/84). Retrieved from <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

United Nations. (1997). *United nations framework convention on climate change* (Kyoto Protocol to the United Nations Framework Convention on Climate Change, 3rd Conference of Parties). Kyoto, Japan.

United Nations. (2001). *Draft articles on responsibility of states for internationally wrongful acts with commentaries* (Text adopted by ILC at its 53rd session A/56/10). Retrieved from http://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf.

United Nations. (2006). *Draft principles on the allocation of loss in the case of transboundary harm arising out of hazardous activities, with commentaries* (Text adopted by ILC at its 58th session A/61/10). Retrieved from http://legal.un.org/ilc/texts/instruments/english/commentaries/9_10_2006.pdf.

United Nations. (2007). *Declaration on the Rights of Indigenous Peoples*. UN General Assembly Resolution. Retrieved from <https://undocs.org/A/RES/61/295>

United Nations. (2014). Decision 2/ CP.19, *Warsaw international mechanism for loss and damage associated with climate change impacts*, FCCC/ CP/ 2013/ 10/ Add.1.

United Nations. (2015). *United nations framework convention on climate change* (adoption of the Paris Agreement, 21st Conference of the Parties). Paris.

United Nations. (2018). *Decision -/CMA.1: Matters relating to the implementation of the Paris Agreement* (advance unedited version). Retrieved from https://unfccc.int/sites/default/files/resource/cp24_auv_3cma1_final.pdf.

Urgenda Foundation v The Netherlands (Ministry of Infrastructure and Environment) C/09/456689/HA ZA 13-1396 (District Court, The Hague, 2015), english translation. Retrieved from <https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBDHA:2015:7196>.

Van Den Homberg, M., & McQuistan, C. (2019). Technology for climate justice: A reporting framework for loss and damage as part of key global agreements. In R. Mechler, L. Bouwer, T. Schinko, S. Surminski, & J. Linnerooth-Bayer (Eds.), *Loss and damage from climate change: Concepts, methods and policy options?* (Pp. 513-545). [Springer, Cham version]. doi: https://doi.org/10.1007/978-3-319-72026-5_22.

Vanhala, Lisa and Cecilie Hestbaek (2016). Framing Climate Change Loss and Damage in UNFCCC Negotiations. *Global Environmental Politics* 16(4), 111-129

Vedanta Resources PLC v Lungowe [2019] UKSC 20.

Verheyen, R. (2012). *Loss and damage: Tackling loss & damage – a new role for the climate regime?* Retrieved from Loss and Damage in Vulnerable Countries Initiative <http://www.lossanddamage.net/download/6877.pdf>.

Voigt, C. (2008). State responsibility for climate change damages. *Nordic Journal of International Law* 77, 1-22.

Voigt, C. (2016). The potential role of the international court of justice in climate change-related claims. In M. Faure (Ed.). *Elgar Encyclopedia of Environmental Law*. Massachusetts: Edward Elgar Publishing.

Wanless, W.C. (2009). Corporate liability for international crimes under Canada's crimes against humanity and war crimes act. *Journal of International Criminal Justice* 7, 201-221.

Watt-Cloutier, S. (2016). *The Right to Be Cold: One Woman's Story of Protecting Her Culture, the Arctic, and the Whole Planet*. Penguin Random House Canada.

Wewerinke-Singh, Margaretha. (2018) State responsibility for human rights violations associated with climate change. In S. Duyck, S. Jodoin, A. Johl (Eds.). *Routledge Handbook of Human Rights and Climate Governance*. London & New York: Routledge.

World Health Organization [WHO]. (2018). *COP 24 special report: Health and climate change*. Katowice, Poland: United Nations. Retrieved from <https://www.who.int/globalchange/publications/COP24-report-health-climate-change/en/>.

Wrathall, D., Oliver-Smith, A., Fekete, A., & Sakdapolrak, P. (2015). Problematising loss and damage. *International Journal of Global Warming* 8(2), 274-294.

Yaiguaje v. Chevron Corporation, 2018 ONCA 472, 423 DLR (4th) 687.

Zommers, Z., Wrathwall, D., & Can der Geest, K. (2014). *Loss and damage to ecosystem services UNU-EHS working paper series. No. 12*. Bonn, Germany: United Nations Institute for Environment and Human Security.