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Erin Roberts & Mark Pelling

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POLICY ANALYSIS ARTICLE

Loss and damage: an opportunity for transformation?

Erin Roberts[a,b] and Mark Pelling[b]

[a]Kings College London, London, UK; [b]Overseas Development Institute, London, UK

ABSTRACT

As observed and predicted losses and damages from climate change impacts grow increasingly severe, calls for transformation as a response to long-term climate change have become more frequent. Transformational approaches have also been integrated into the global climate change regime under the UN Framework Convention on Climate Change (UNFCCC) as part of the workplan of the Executive Committee guiding the implementation of the Warsaw international mechanism, the oversight body on loss and damage. However, there has as yet been no attempt to define what is meant by transformation in the context of loss and damage. This paper attempts to clarify the burgeoning academic and policy literature by positing three types of transformation as a response to loss and damage: transformation as adaptation (an intensification of dominant socio-ecological relationships), transformation as extension (when the limits of established adaptive capacity are reached) and transformation as liberation (adopting development pathways that address the root causes of vulnerability). Transformation as liberation is proposed as a deeper change to social-technological systems to avoid and minimize loss and damage in ways that enhance social justice and sustainability. To provide the kind of information decision makers need to plan and implement transformation as liberation, more research is needed on how to plan in a way that ensures the most equitable outcomes.

Key policy insights
- Loss and Damage is an opportunity to scrutinize and address the root causes of vulnerability.
- Framing climate change as a development crisis will allow opportunities for transformation as liberation to emerge.
- Transformation as liberation to address the root causes of vulnerability requires meaningful engagement with processes at all levels.
- A new model of global governance is needed in which global equity is a moral imperative.
- The transition to transformation as liberation must be just, which requires leadership, inclusive and participatory decision making and building alliances.
- The global Loss and Damage agenda could open up space for a broader discussion on how transformation as liberation can be facilitated to address inequalities both between and within countries.

Introduction

Over the past few years, extreme weather and slower onset climatic events have resulted in unprecedented levels of loss and damage in countries around the globe. With the impacts of climate change on the rise, calls for transformational approaches to address the climate challenge have become increasingly frequent (Barnett et al., 2015; Eriksen, Inderberg, O'Brien, & Sygna, 2015; Klein et al., 2014; Mapfumo et al., 2015; Moore et al., 2014; O'Brien, 2012; 2017; Pelling, 2011; Warner & van der Geest, 2013; Westley et al., 2011,

2013). Transformation has become associated with loss and damage and both have become synonymous with the limits to adaptation. Dow, Berkhout, Preston, Klein, et al. (2013) assert that when the limits to adaptation are reached, a society has two choices: incur loss and damage, or transform. Yet, although transformation is a term increasingly employed within the global discourse on climate change, it remains ambiguous with multiple interpretations (Feola, 2015; Nalau & Handmer, 2015).

Though Parties to the Paris Agreement agreed to the importance of averting, minimizing and addressing losses and damages from the impacts of climate change, there is no universally accepted definition of loss and damage. Climate scholars refer to both dimensions broadly as the negative impacts of climate change (Kreft, Warner, Harmeling, & Roberts, 2013; UNFCCC, 2012), and more narrowly as the impacts of climate change that are not avoided by mitigation and adaptation (Roberts & Pelling, 2018). Surminski and Lopez (2015) propose that framing loss and damage has both a technical dimension which focuses on the practical aspects of avoiding, minimizing and addressing loss and damage and a political dimension with its focus on historical liability and compensation. To differentiate between the impacts and the tools used to address them, we use 'loss and damage' (lower case) to refer to the impacts of climate change not avoided by mitigation and adaptation efforts and 'Loss and Damage' (upper case) to refer to the broader policy frameworks at all levels within which these impacts are being addressed.

The association of transformation with Loss and Damage arises from academic work and has also been recognized by the UNFCCC under the Warsaw International Mechanism on Loss and Damage (WIM), the overarching body on Loss and Damage within the global climate regime (UNFCCC, 2017). In their research amongst key stakeholders, Boyd, James, Jones, Young, and Otto (2017) identified the consideration of transformation in development or risk management pathways once residual impacts in vulnerable countries become unacceptable as one aspect of the global Loss and Damage agenda. This perspective is contrasted with others which include the need for scaling up both mitigation and adaptation efforts, the importance of comprehensive risk management and evidence of the limits to adaptation. In practice, these perspectives overlap and could reinforce each other in determining policy orientation, ambition and application to address the root causes of vulnerability (Roberts & Pelling, 2018). Despite limited engagement with scholarly debates, the evolution of Loss and Damage has also come to include statements on transformation. The global Loss and Damage agenda under the UNFCCC is being used as grounds to call for transformative responses to address climate change and limit its impacts (Roberts & Pelling, 2018; Roberts, van der Geest, Warner, & Andrei, 2014; Warner & van der Geest, 2013; Warner et al., 2012). Transformational approaches to address loss and damage have been included in the workplans of the Executive Committee, which guides the work of the WIM – the oversight body on Loss and Damage under the UNFCCC. The term 'transformational approaches' has yet to be defined within these discussions, however, as it remains contentious.

Transformation is not a novel concept and has been discussed in various fields of study for decades (see for example: Freire, 1970). As the climate crisis broadens and deepens transformation is experiencing a resurgence but in many ways these debates are age-old. This paper is motivated by the emergence of the Loss and Damage agenda as a platform for transformation, and the need for a systematic assessment of the ways in which transformation might be deployed to best meet the aims of Loss and Damage policy to avert, minimize and address the impacts of climate change that are not avoided. These include reducing the impacts of climate change while meeting the goals of equity and sustainability as agreed in sister frameworks, importantly the UN Sustainable Development Goals (SDGs) and the Sendai Framework for Disaster Risk Reduction. Policies to avert, minimize and address loss and damage encompass both transformative – fundamental – changes in technical dimensions of risk management and the broader economic, social and political structures that underpin climate vulnerability and impacts. This paper begins by demonstrating the range of existing interpretations of transformation that can, or have been, applied to shape Loss and Damage policy and practice. Three approaches are identified, with overlapping features: transformation as intensification, transformation as extension and transformation as liberation. The paper analyses these approaches, and concludes that transformation as liberation offers the widest range of policy opportunities for Loss and Damage to meet the goals of equitable and sustainable development. The paper then offers a set of potential enabling factors and recommendations to help transition transformation policy to practice and also highlights the role of global processes in facilitating transformation.

Unpacking transformation as a response to increasing loss and damage

Transformation as a response to climate change impacts has origins in many disciplines (Bahadur & Tanner, 2012; Pelling, 2011). Within the climate change adaptation literature, notions of transformation first arose in work on social-ecological systems (Gunderson & Holling, 2002; Gunderson, Holling, & Light, 1995; Holling, 1986; Walker, Holling, Carpenter, & Kinzig, 2004). In their seminal paper, Walker et al. (2004, p. 2) defined transformability as '[t]he capacity to create a fundamentally new system when ecological, economic, or social (including political) conditions make the existing system untenable'. The social-ecological systems literature differentiates between transformation in which a regime shift occurs and incremental adaptation in which the regime remains intact (Folke, 2006; Olsson, Galaz, & Boonstra, 2014 in Fenton, Tallontire, & Paavola, 2016). The relationships between transformation and resilience continue to be debated depending on whether transformation is seen as a process or an outcome. For Walker et al. (2004), a resilient system is able to absorb and respond to shocks while transformation occurs when the limits of adaptability are reached and a system can no longer maintain its resilience. Pearson and Pearson (2012) propose that resilience tends to be inward looking, aimed at maintaining a system, whereas transformation is more outward looking, and more open to new ways of thinking and doing. However, Pelling, O'Brien, and Matyas (2015) argue that, within adaptation policy, transformation can lead to both resilient and sustainable development outcomes. They also argue that incremental adjustments can similarly lead to resilient outcomes, though Matyas and Pelling (2014) maintain that incremental changes can also be short-term fixes that delay or avoid entirely more fundamental changes, and can lock systems or societies into unsustainable pathways.

Following, in particular, the Special Report of the Intergovernmental Panel on Climate Change (IPCC) on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) (IPCC, 2012), views on transformation inspired by political economy and political ecology were introduced to climate change adaptation. Developed within the field of disaster risk reduction, these complemented social vulnerability approaches to climate change adaptation (Adger, 1999). Within the tradition of political economy, transformation indicates a change to social, political or economic structures with the depth and breadth of change differing across the spectrum of concepts of transformation (Feola, 2015; Godfrey-Wood & Naess, 2016). Building on these literatures, Fenton et al. (2016) proposed three categories of transformation in the context of climate change: the ecological resilience approach based on the understanding of transformation in the social-ecological systems literature; the political ecology approach in which transformation challenges the status quo and addresses the root causes of vulnerability; and, finally, a risk hazard approach, which views adaptation at larger scales and intensities. An underlying theme in all three categories is that, for transformation to occur, the status quo must be untenable and the proposed transformation must be novel practice (Fenton et al., 2016). In this section, we acknowledge from the outset the complexities of defining transformation, and that responses to climate change are inherently political and shaped by those in power (see: Adger, 2003; Eriksen et al., 2015; Pelling, 2011). Our aim is to draw a link between the global climate change agenda and national and sub-national policies and processes to suggest how Loss and Damage could provide the impetus for broader and deeper change.

Transformation as intensification of dominant social-ecological relationships

Transformation as intensification of dominant social-ecological relationships reflects two types of adaptation. One is based on the theory that incremental adaptation strategies can build on one another and eventually lead to transformational change. The second is that technological changes can by themselves be characterized as transformation. These types of transformation are defined as an intensification of dominant social-ecological relationships as they reinforce rather than challenge the status quo. With warming of over 2°C increasingly likely, adaptation will need to cycle between incremental and transformative actions (Park et al., 2012; Wise et al., 2014). In fact, some scholars have proposed that incremental adaptation can also lead to transformative outcomes (Mapfumo et al., 2015; Park et al., 2012; Rippke et al., 2016). However, the extent to which these outcomes are indeed transformational is debated.

Much work on transformational adaptation has focused on the agricultural sector. Rippke et al. (2016) describe as transformational a process which begins with incremental adaptation including improvements to

crops and practices, proceeds to a preparatory phase to develop and implement enabling institutions and policies, and ends with what they refer to as transformational adaptation, in which farmers grow new crops, explore other livelihood strategies or relocate. However, these adaptation strategies do not challenge the status quo and describe incremental changes in response to changing conditions. This is more akin to business as usual adaptation than transformation. Similarly, Rickards and Howden (2012) describe transformational adaptation in agriculture as expressions of ongoing co-evolution. In their depiction, adaptation is deployed as a technology to respond to climatic changes, not to address the underlying political, social, cultural, and economic conditions that give rise to vulnerability. In this understanding, transformation is applied to describe adaptation leading to an intensification of the status quo. The fittest will survive and may prosper through adaptation, while those less able are increasingly left behind or negatively impacted by the adaptation choices of others (Atteridge & Remling, 2017).

The second type of transformation as intensification is described by Kates, Travis, and Wilbanks (2012), who define transformation as adaptation that takes place at a larger scale or intensity than previous adaptation actions, adaptation that takes place at a different place or location (such as resettlement) and new types of adaptation, such as the adoption of new climate-resistant crop varieties. There is no explicit acknowledgement of the opportunity – or responsibility – opened by a desire to avoid future loss and damage by realigning underlying development trajectories towards unmet sustainable development goals. Intentional change under transformation as intensification is limited to technology, though secondary or unintended consequences may also transform ecological or social realms. In Australia, Marshall, Park, Adger, Brown, and Howden (2012) have used transformation to describe economic intensification processes and find them preferred by actors who are well-networked and better resourced.

Outcomes intensify dominant economic and social-ecological relations and tend to benefit already powerful actors while potentially inflicting secondary impacts – or losses and damages – on those whose livelihoods are dependent upon them. Also working in Australia, Park et al. (2012) demonstrate this effect in the wine sector, with well-financed businesses adapting in ways described as transformative by changing location, technology or organizational form, with knock-on implications for host communities and supply chain partners left behind. Thus, transformation understood as intensification reproduces patterns of inequality, and access to opportunities to transform are unequal. Thornton and Camberti (2013, p. 4) take a slightly different view, calling transformational adaptation, 'the radical end of more conventional adaptation processes and capacities'. One of the examples they provide is the development of renewable energy initiatives in Alaskan indigenous communities as a means of reducing dependence on fossil fuels, creating employment and maintaining rural livelihoods. In this sense transformation as intensification is more empowering and has the potential to build resilience and avoid and minimize losses and damages in the long-term by enhancing sustainable development. However, the intention is not to fundamentally change social systems. These examples of incremental adaptation by themselves are unlikely to lead to transformation unless they inspire fundamental changes that address unequal balances of power that allow some to employ adaptation strategies not available to others.

Clearly, adaptation has a role to play in avoiding and minimizing losses and damages, but incremental adaptation will not be sufficient to avoid loss and damage in all cases (Klein et al., 2014). In the context of Loss and Damage, transformation as intensification has a role to play but raises questions of equity as not all actors will have the capacity to implement transformation as intensification. Transformation understood as intensification does not fundamentally alter existing relationships nor does it address the reasons why households, societies and systems are vulnerable in the first place. This constrains the scope for contributions to enhance sustainable and equitable development. We would therefore not characterize transformation as intensification as true transformation.

Transformation as extension of the limits to adaptation

The second meaning ascribed to transformation of relevance to the Loss and Damage agenda is implemented when the limits to adaptation are approached or have been reached. We refer to this transformation as an extension of the limits to adaptation. Both Dow, Berkhout, Preston, Klein, et al. (2013) and Preston, Dow, and Berkhout (2013) assert that, when the limits to adaptation are reached, either transformation occurs or losses and

damages are incurred. That said, transformation can also result from the manifestation of loss and damage. Deliberate transformations that are planned when the limits to adaptation are reached involve the re-orientation of the objectives and priorities of a system (Preston et al., 2013). This interpretation shares with transformation as intensification a conservative orientation. Neither seeks to consider nor purposefully engage with underlying development structures, though both will have local impacts on both development opportunities and outcomes.

Transformation as extension is largely characterized in the literature as a spontaneous process which often exacerbates inequality and deepens poverty and vulnerability. Nelson, Adger, and Brown (2007) describe this variant of transformation as the point at which the ecological, social or economic conditions of a system become untenable or undesirable. In this sense, either collapse or transformation are forced upon a system or society. The presentation of transformation as extension echoes work on coping with disaster loss and especially food insecurity (Wisner, Cannon, Davis, & Blaikie, 2004). Here coping is presented as a set of cascading systems transformations (Pelling, 2011), with each transformation reducing future opportunities as households or individuals are forced to make trade-offs that will ultimately make them more vulnerable to future impacts. Each transformation allows the household to extend its survival in the near term, but at a cost to long-term resilience (see: Opondo, 2013; Warner & van der Geest, 2013).

Research in Australia described the way in which a peanut company responded when it recognized the limits of incremental adaptation had been reached by buying land in another part of the country with access to irrigation (Jakku et al., 2016). Ultimately, however, economic, environmental, social and institutional barriers were encountered and eventually the company shifted from raw peanut production to value-added processing. In fact, in many ways, this example is more akin to transformation as intensification than transformation as extension and the definition of transformation as proposed by Kates et al. (2012). We characterize it as transformation as extension as it represents a deliberate effort to extend the limits of adaptation although it reinforces rather than challenges the status quo. Similarly, Fenton et al. (2016) found that wealthier households in rural Bangladesh implemented transformation as extension by purchasing land from poorer households to expand aquaculture operations when traditional agriculture became untenable. In both examples resource levels determined the ability of actors to adapt and avoid or reduce loss and damage.

Transformation as extension may extend the limits to adaptation of some, but those who benefit from these efforts are those with the most resources. The limits to adaptation are heavily influenced by the values underlying adaptation preferences – be they to avoid intolerable risk or to improve human well-being as part of a broader development process – and can be difficult to assess (Adger et al., 2009). The use of transformation to extend the limits of adaptation recognizes the complexity of the limits to adaptation. First and foremost, the limits to adaptation are fundamentally about the value and what level of risk can be tolerated. The discourse on the limits to adaptation opens up a discussion on how the limits to adaptation can be extended which is relevant for the loss and damage agenda. From the literature, it is clear that societies will need to make some difficult choices when the limits of adaptation are reached in order to avoid and minimize loss and damage. And in fact, avoiding loss and damage in one context may give rise to losses and damage in another. In order to understand who will benefit from transformation as extension, a greater understanding of the prevailing power dynamics in society is required. Current examples of transformation as extension in the literature are not, in our view, transformation.

Transformation as liberation to address the root causes of loss and damage

Transformation as liberation describes efforts to enhance equity and justice as a means of reducing vulnerability and risk and as contributions to wider and ongoing development struggles. The extent of losses and damages arising from climate-related hazards is influenced by the vulnerability – be it social, political or economic – of the people and societies exposed to them (Ribot, 2010). Recognizing this, many scholars therefore see transformation in the context of climate change as a deeper, more challenging change, increasingly considering issues of social justice and imbalances of power (Moore et al., 2014). We refer to this type of transformation as liberation to address the root causes of climate change because it provides for a scrutinization of the forces that drive the marginality and inequality that contribute to vulnerability. Béné, Newsham, Davies, Ulrichs, and Wood (2014, p. 22) argue that transformation involves challenging the status quo by altering 'entrenched systems maintained

by powerful interests'. This liberatory understanding of transformation retains dependency for change on a climate event. For Béné et al. (2014) a crisis is needed to provoke transformation. However, transformation can be both unplanned and inadvertent or planned and deliberate and can have both positive and negative outcomes (Feola, 2015; Wilson, Pearson, Kashima, Lusher, & Pearson, 2013).

Manuel-Navarrete and Pelling (2015) define deliberate transformation as radical changes that can simultaneously reduce both inequality and climate risks. Matyas and Pelling (2014, p. 58) go one step further, defining transformation as 'fundamental restructuring, pushing the system towards a different status quo'. These changes can either be purposefully planned and carried out by human actors or triggered by an external event (Manuel-Navarrete & Pelling, 2015). We argue that transformation as liberation is transformation that is deliberate and planned, and which engages with those most vulnerable. However, it must be acknowledged that transformation as liberation is difficult to achieve (Fenton et al., 2016). Can liberation in adaptation also be anticipatory and catalyzed not by an event but by risks and the evidence they provide of unsustainable development pathways? If so climate change with its unique futures orientation offers a significant opportunity for social liberation that can also reduce loss and damage by bringing together justice and resilience.

Transformation as liberation is defined by its capacity to understand and address what makes households and societies vulnerable. Pelling et al. (2015) maintain that transformation occurs when existing systems and decision makers aim to address the root causes of social vulnerability. In this way, transformation as liberation can correct the shortcomings of historic development pathways that have created or contributed to the social inequality, poverty and environmental problems eventually leading to vulnerability (Eriksen et al., 2011). Transformation as liberation addresses development failures including by extending rights to those previously marginalized. Given that it challenges the status quo, transformation is more likely to be driven by a bottom up than a top down process (Manuel-Navarrete & Pelling, 2015). Transformation as liberation is not only a deeper change but also a longer-term strategy that can avoid and minimize loss and damage and provide a platform to better address losses and damages when they occur by ensuring a wider range of actors have the tools they need. It is in increasing informed and inclusive decision-making with the power to act that adaptation can contribute to more just processes and outcomes and become liberatory (Ziervogel et al., 2017).

Transformation as liberation can also fundamentally alter the way in which people see themselves and their relationships to both society and others within it. For O'Neil and Handmer (2012, p. 2), transformation is a call for re-examining the way in which people relate to one another, their environment and broader social processes. In this understanding of transformation as liberation, both the risk and manifestation of loss and damage open up scope for reflecting on, and changing, perceptions, meaning, norms and values, altering social networks and power structures, and introducing new institutions and regulatory frameworks (O'Brien et al., 2012). Transformation as liberation requires taking a broader set of issues and ideas into consideration alongside climate change policies and plans, and questioning current development trajectories. This requires an understanding of vulnerabilities and a vision for a preferred future. This vision of transformation is emerging in practical application. The opening of space for development gains through adaptation planning can be seen in a recently developed African Development Bank programme that provides access to both land and credit for women (AfDB, 2015) to confront women's lack of land tenure rights, which is one of the predominant causes of gendered inequality in vulnerability to climate change and wider development opportunity (ActionAid, 2011).

Transformation in global processes

Climate change is fundamentally a development crisis (Francis, 2015; Parry, 2009). If approaching transformation as liberation offers the best hope of transitioning towards a more sustainable and equitable future, then what scope is there for the evolving UNFCCC mechanisms to support this process? Within the UNFCCC architecture, the WIM was established at the 19th Conference of the Parties (COP) in 2013 to address loss and damage in developing countries particularly vulnerable to the impacts of climate change (UNFCCC, 2014). The workplan of the Executive Committee that guides the implementation of the WIM explicitly identifies transformational approaches in the context of comprehensive risk management (UNFCCC, 2014). However, the term 'transformational approaches' have yet to be defined and remain politically contested.

While transformation has different meanings for different actors, the lack of an agreed definition within the UNFCCC could allow the term to be co-opted by powerful actors who will impose their own definition of transformation (Feola, 2015). Moreover, under the UNFCCC negotiations, transformation is highly political, often favoured by developed country actors, perhaps as a substitute for providing support to compensate developing countries for loss and damage. A similar process has unfolded across IPCC reports. While transformation had a singular interpretation – fundamental change - when first introduced in the 2012 SREX (IPCC, 2012), the three competing interpretations presented in this paper were expressed only two years later in different chapters of the IPCC Fifth Assessment Report (IPCC, 2014; Pelling, 2014).

There are additional challenges for the global agenda. Transformation as extension could potentially undermine the Loss and Damage agenda. For example, if relocation – be it of a community or the citizenry of an entire country - is framed as transformation, as in the IPCC's Fifth Assessment Report, the argument could be that there is no need to develop approaches to address loss and damage, as transformational adaptation is sufficient to respond to the impacts of climate change. However, if framed as a means of avoiding loss and damage, transformation could be used to extend the limits of adaptation in a meaningful way if it addressed the underlying power structures that contribute to the conditions that give rise to vulnerability. Whether or not an action is framed as a transformation or an approach to address loss and damage – as with relocation – would also depend on the objectives and values of the society taking that action. If the objectives of a society continue to be met, then it has not yet reached the limits of adaptation (see Dow, Berkhout, & Preston, 2013; Preston et al., 2013). For example, if planned in such a way that it moves societies towards more resilient, equitable and resilient futures, relocation could in fact be transformative. If, however, the objectives of a society are no longer met and they are forced to take action to avoid intolerable risk, then it could be said they are already incurring loss and damage while taking action to avoid greater losses and damages. However, this also requires answering the question of who gets to decide when the limits to adaptation are reached. If it is the powerful and elite, and the status quo is perpetuated, this could exacerbate the vulnerability of the poorest and most marginalized.

Under the UNFCCC process, there are already provisions for increasing focus on people and countries that are particularly vulnerable to the impacts of climate change. The adaptation article of the Paris Agreement acknowledges the importance of adaptation action being country-driven, gender-responsive, participatory and fully transparent and taking into account vulnerable groups, communities and ecosystems (UNFCCC, 2016, Article 7, paragraph 5). If this was truly achieved, from the local to the global levels, it would amount to a transformation of decision-making processes and an advance for procedural justice – transformation as liberation to avert, minimize and address loss and damage. Transformation as liberation also provides opportunities to scrutinize some of the processes that render certain populations vulnerable. However, there are vested interests maintaining powerful narratives that sustain the status quo (Joshi, Platteeuw, Singh, & Teoh, 2018; O'Brien et al., 2012; Pelling, 2011; Pelling et al., 2015). Using the example of Bangladesh, Paprocki (2015) argues that the narrative of climate change can depoliticize development and obscure some of the political and social injustices that have exacerbated in equality. This highlights the challenge of transformation as liberation as a top down process given that it is often in the interests of the most powerful in society to maintain the status quo.

Transformation as liberation requires focus on the processes that render countries, societies and households vulnerable at all levels. Both the UNFCCC and its Paris Agreement have re-enforced the sovereign right of each national state to determine its own adaptation strategies. It may be difficult for alternative development models to be envisioned or deployed even as experiments. However, what if both the vulnerability of countries within the global regime under the UNFCCC and that of the marginalized populations within them could be simultaneously recognized and addressed? What if developing countries could advocate for greater resources to address the impacts of climate change for which they are not responsible while simultaneously addressing the root causes of vulnerability within their own borders? Increasing focus on reducing vulnerability could provide an entry point and increased legitimacy for sub-national actors and NGOs working on the ground to support transformation as liberation. This is already happening, for example through the work of international NGOs like ActionAid and CARE that have integrated tools for empowerment into climate change programming (see: ActionAid, 2014; CARE, 2015). The challenges remain the extent to which alternatives and dominant approaches can coexist with one another and the consequences of arising social and political tension. Ensuring

a meaningful discussion on transformation as liberation within the global climate regime would require a broader and deeper conversation about why developing countries are vulnerable in the first place and why they continue to lack an equitable voice within global processes.

There are also entry points for transformation as liberation in the global sustainable development agenda. In June 2015, Pope Francis issued a 180-page encyclical which situated modern capitalism at the heart of the 'climate crisis'. The encyclical called for an altering of production and consumption patterns in developed countries to reduce future climate change impacts and address the root causes of poverty in developing countries, drawing links between the two (Francis, 2015). The UN SDGs share a vision of coupling social justice and resilience, and provide a more technical entry point to compliment Pope Francis's normative leadership. While SDG 13 is explicitly focused on addressing climate change, all the SDGs could enable the opening of broader and alternative development visions and directions, particularly SDG 5 (achieving gender equality and empowerment of women and girls), SDG 10 (reducing inequality within and among countries) and SDG 12 (ensuring sustainable production and consumption patterns). Again, it is up to each country to implement strategies to address vulnerability and reduce poverty in their own national context, but given their focus on empowerment and equality, the SDGs present an opening for transformation as liberation to avoid, minimize and address loss and damage through more just development. Again, however, transformation as liberation requires acknowledging the root causes of vulnerability at all levels.

Planning for and implementing transformation as liberation within the loss and damage agenda

As the intended outcome of a planned process or the unplanned outcome of a spontaneous process or event (see: Moore et al., 2014; Nelson et al., 2007; O'Brien, 2012; Pelling et al., 2015), transformation as liberation can evolve slowly as a result of changing social values and institutions, or quickly as a result of an external event such as a disaster (O'Brien, 2012; Pelling, 2011). Exogenous shocks can provide opportunities for re-evaluating the status quo (Folke et al., 2010) and open up space for transformation as liberation (Pelling & Dill, 2010). Part of the response to the 2010 earthquake in Christchurch, New Zealand, for example, has been to open new educational and small-business support opportunities for Maori youth, and this has spread to nationwide application (Moore et al., 2014). Hurricane Sandy increased awareness of climate change among individuals and in public and political discourse, reinforcing mitigation and transformative approaches to adaptation in New York City (Rosenzweig & Solecki, 2014). With support, similar approaches could be adopted in the Caribbean and southern Africa, regions that will be rebuilding for years to come in the wake of recent cyclones.

A significant challenge to transformation as liberation is that it involves fundamental changes that themselves bring social impacts, often initially to the poorest and most vulnerable. Transformation requires understanding and challenging the assumptions underlying prevailing development discourses and practices (Manuel-Navarrete & Pelling, 2015). Key to transformation is the question of who decides when transformation is needed and how it unfolds (O'Brien, 2012). Transformation as liberation acknowledges that policies and plans to avert, minimize and address loss and damage can be captured by already dominant interests to accelerate the status quo reducing options for just, sustainable and resilient futures. As O'Brien (2017) notes, transformation is not a neutral concept, but one which is reflective of the beliefs, values, worldviews and interests of both actors and institutions. Because transformation as liberation involves intentional and fundamental social change within systems maintained and protected by powerful actors, attempts to foster transformation will likely be hidden from the view of dominant actors (including science) (O'Brien, 2012; Pelling, 2011; Pelling & Manuel-Navarrete, 2011).

Transformation as liberation is rare as it requires changes to systems maintained by powerful actors (Béné et al., 2014) and tends to be followed (and also often proceeded) by a period of instability which development and humanitarian agencies are uncomfortable with provoking (Pelling et al., 2015). Stable societies are organized to resist transformative tendencies (whatever their direction or cause) and reaching beyond stability opens many uncertainties for all segments of society but especially for the poorest who have the least resources to cope with change (Pelling, 2011). Transformation thus carries a heavy ethical load – those who may benefit most in the long-run might also lose most in the short-run. This raises strong questions for the development of

policies and plans to avert, minimize and address loss and damage and facilitate sustainable development. It is therefore important to understand the 'disequilibria' that can result from transformation (O'Brien et al., 2012, p. 466). As Fook (2015) argues, transformation poses more questions than it can answer – though this could be characterized as an opportunity rather than a drawback. Indeed, transformation forces us to look at ourselves and our societies, including the critical links between countries and the globalizing forces that give rise to vulnerability. Ensuring adequate lead-time for transformation can smooth the transition between incremental change and transformation as liberation (Stafford, Horrocks, Harvey, & Hamilton, 2011) and prevent possible problems before they arise (Rickards & Howden, 2012).

What are the precursors of transformation as liberation?

When transformation as liberation does occur, it is often the result of a pressure from several fronts which cut across scales (Smith, Stirling, & Berkhout, 2005 in Moore et al., 2014). Leadership is also an important component of planning for transformation and can bring these elements together. Moore et al. (2014) argue that, regardless of who is leading, establishing collective vision for alternative development pathways and the gathering of momentum for change are important precursors to transformation. Empirical research in Australia found that an ability to develop a vision of alternative futures is a precursor to transformation (Wilson et al., 2013). Though more ambitious climate change policies at the national level can stimulate greater action at the local level, local leadership is also important (Burch, 2010). In their analysis of eight case studies in Africa, Mapfumo et al. (2015) found that 'change agents' are important precursors of transformational change. However, even if the political leadership exists, transformation as liberation is unlikely to be realized unless individuals have the necessary knowledge, determination and capacity to affect change (Räthzel & Uzzell, 2011). Self- and critical- reflection (Schlitz, Vieten, & Miller, 2010) and how individuals see themselves, their relationships to others and the environment are also key to planning for deliberate and less disruptive transformation as liberation (Pelling, 2011).

Inclusive and participatory decision making that responds to a range of values and objectives is also a crucial first step towards transformation that could be liberatory. Vulnerable groups are often excluded from decision-making processes yet forced to live with their outcomes (Adger, 2003). However, participation alone is not enough if it does not acknowledge local power dynamics (Dodman & Mitlin, 2013). There are many well-documented examples of large social organizations, especially in South and Southeast Asia, that have leveraged social change within alternative development paradigms from community-based origins (Mitlin, 2012). One example of this is in the work of the Bangladesh Rural Advancement Committee to enhance social, legal and political awareness of rural women in Bangladesh, with the aim of helping women transition from being dependent on their husbands to earning money of their own (Hashemi & Umaira, 2011). A focus on transparency, accountability and empowerment provides a space for disempowered groups to have a voice in decision making while enhancing their ability to hold those in power responsible for their decisions (Ensor, Park, Hoddy, & Ratner, 2015). In the wake of the 2010 floods in Pakistan 1000 women leaders were trained to better understand their rights and subsequently created self-help groups in their own communities, one of the aims of which is to negotiate with local governments to develop more effective risk reduction planning that better integrates the needs of women and girls (Action Aid, 2014). It is difficult to measure the impacts of these policies and programmes as losses and damages not incurred cannot be measured. In addition, as Parsons and Nalau (2016) note, the true judges of whether or not transformation has occurred is those whose lives have been transformed (or not).

Can local transformations lead to systems-wide change? Work on social movements suggests that social tipping points do not require action support from the majority of society. While learning and a willingness to experiment are also essential for transformation (Mapfumo et al., 2015; Moore et al., 2014; Pelling, 2011) local experiments are unlikely to generate transformation beyond individual and local experience, without behavioural changes at larger scales (Tschakert & Dietrich, 2010). These large scale behavioural changes could be prompted with a re-framing of climate change from an environmental problem to a social and developmental crisis. Sustaining transformation will also require building alliances and networks – both social and institutional –

across both scales and sectors (Mapfumo et al., 2015). A strong sense of community identity can also help facilitate transformation (Wilson et al., 2013).

Whether or not transformation of any kind occurs has a lot to do with how climate change is framed (Rickards, 2013). If it is isolated as a purely environmental problem rather than a result of unsustainable development pathways, it is unlikely that transformation will take place (Burch, 2010; Pelling, 2011). Using Loss and Damage as a lens could broaden perceptions of the causes of, and solutions to, climate change impacts. Framing the issue in the context of local impacts – losses and damages occurring now or in the near future – could make climate change more salient for individuals (Spence, Poortinga, & Pidgeon, 2012). Evidence of the losses and damages being incurred today and forecasting of what could come in the future could change the way in which individuals see themselves and their relationship to the world. As Klein (2014) argues, the world will look different to those who watch the possessions they have worked their entire lives to accumulate float away in the wake of a super storm.

Conclusion

Progress to advance efforts to address loss and damage has been slow and it remains both a technically complicated and politically contentious issue. Loss and Damage is in some sense a newcomer to the UNFCCC agenda, though approaches to address loss and damage were first proposed during the negotiations that led to the UNFCCC in the early 1990s (Roberts & Huq, 2015). More recently, at the 2015 Paris Climate Conference, Loss and Damage became a permanent feature of the global climate change agenda. The Paris Agreement includes areas of cooperation and facilitation with the view to enhancing action and support, including the resilience of communities, livelihoods and ecosystems (UNFCCC, 2016, Article 8). The social turn in climate change research aligns with this opportunity in the UNFCCC architecture to place a developmental reading of climate change more centrally. However, states may fear that, in recognizing the structural causes of vulnerability that lie in local and national decision-making as well as global relations, they could be held more accountable for responses to address vulnerability to climate change impacts. However, as Pope Francis maintained in his encyclical, there is a link between vulnerability to climate change in developing countries and the production and consumption patterns in developed countries. Approaches to avoid, minimize and address loss and damage should be part of a wider movement towards sustainable development. Transformation as liberation acknowledges this possibility.

The IPCC's report on Global Warming of 1.5°C warns that swift and concerted action will be needed to limit global average warming to below 1.5°C (IPCC, 2018). The quicker these actions, the more likely they are to be disruptive to the status quo, which elevates the importance of discussions on what a just transition looks like. The alternative is transformation that is forced on societies when loss and damage occurs. The ambition of enabling social justice through climate change adaptation and wider action to reduce disaster risk is not new, but it has, until recently, been on the fringes of mainstream policy. The UNFCCC Loss and Damage agenda and the synthesis of this burgeoning literature in the IPCC bring transformation centre stage, and with this, opportunities for more emancipatory and liberatory action in the name of climate change adaptation.

As adaptation becomes more integrated into development processes and debates, ongoing and unresolved social struggles will invariably gain prominence. The climate change research community can learn from the processes to better understand the origins of vulnerability to climate change. However, additional research is needed to better understand the social, political and cultural complexities of transformation. As an analogue, where in the past climate change research has called for historical analysis of how society coevolves with climate (see Hulme, 2009), transformation as liberation calls for work that can better understand how individuals and societies cope with deep-rooted social and economic change, and how this can best be steered to move towards, not away from, sustainable development.

Academic research is increasingly engaging with what O'Brien (2012, p. 668) refers to as the 'real adaptive challenge', seen as the questioning of the assumptions, beliefs, values, and interests that have led to the structures, systems and behaviours underlying anthropogenic climate change, and which have also created the conditions for social vulnerability. This calls for a re-framing of climate change, which has until now been mostly characterized as an environmental problem, often neglecting the social, political, cultural and ethical dimensions

of the issue (Fook, 2015; O'Brien, 2012). In order to reveal the possibilities for transformation as liberation, more research is needed on the social processes that influence climate change policies and plans, and facilitate transformation (Schipper, Ayers, Reid, Huq, & Rahman, 2014). Scholars and researchers themselves will need to move beyond their comfort zones to grapple with the complexity of adaptation and its role in wider social processes (Fook, 2015; Wise et al., 2014), and may need to transform and change the way in which they see the world. This social turn in responses to avert, minimize and address loss and damage could also usefully explore synergies with the increasing call for evidence and data to monitor national progress towards the SDGs and Sendai Framework for Disaster Risk Reduction, but is also a response to the need for more observational data and sciences, for example epidemiology in climate change impact and adaptation work. Loss and Damage and indeed losses and damages could be an impetus for this deeper, more critical look at how climate change both influences, and is influenced by, broader global, national and sub-national processes.

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