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Disasters as Ambivalent Multipliers: Influencing the Pathways from Disaster to Conflict Risk and Peace Potential Through Disaster Risk Reduction

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Abstract
Disasters, including disaster-related activities, have been shown to precipitate, intensify, and lengthen violent conflicts, yet disasters have also demonstrated the potential to reduce violent conflict, encourage cooperation, and build peace. Disaster-conflict and disaster-peace literature has sought to establish causal and linear relationships, but research has not explored with the same rigour the causal mechanisms linking these phenomena in long-term processes of social-political change and how they are influenced by human actions and inactions. This research fills this gap by drawing on in-depth interviews with disaster risk reduction (DRR) professionals in 25 disaster- and conflict-affected countries in South Asia, the Middle East, and Africa to analyse the pathways leading from disasters and disaster-related activities to violent conflict and peace. The findings highlight how these pathways can be deliberately swayed toward peace potential through DRR.

Keywords
capacity, cooperation, disaster diplomacy, disaster risk reduction, disaster recovery, natural resources, scarcity, security, violent conflict, vulnerability

Natural hazard-related disasters ("disasters") affected over four billion people and claimed an estimated 1.23 million lives worldwide from 2000–2019 (CRED & UNDRR, 2020). Despite the global commitment to disaster risk reduction (DRR), the number of disasters and their destructive toll has grown

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sharply compared with the previous 20 years (CRED & UNDRR, 2020). Beyond their direct effects, disasters (including those influenced by climate change) may instigate social-political instability and precipitate, intensify, or lengthen violent conflicts (“conflicts”) (Eastin, 2016; Gawande et al., 2017; Nel & Righarts, 2008; Raleigh & Kniveton, 2012). Extant literature has made strides toward unpacking the relationships between disasters, conflicts, and peace, but the findings are mixed. Some have argued that disasters may increase the risk of conflict, but not uniformly or deterministically (Bernauer et al., 2012; Ide et al., 2020; Slettebak, 2013). Others have found that disasters do not increase the risk of conflict (Couttenier & Soubeyran, 2013) and, in some circumstances, may contribute to cooperation and peace through “disaster diplomacy” (Kelman, 2012).

This article argues that these seemingly incompatible findings are generated by three main oversights in the literature. First, significant research focuses on the relationship between disaster and conflict *or* disaster and peace, but fewer studies seek to understand these relationships in concert and form synthetic conclusions on how disasters may be related to both conflict *and* peace. Second, disasters are often conceptualised as exogenous events or “shocks” rather than recognising them as complex processes that are socially constructed over long time horizons and intertwined with human actions and inactions (exceptions include Siddiqi, 2018; Wisner et al., 2004). Third, most research has sought to establish a causal relationship between disasters and conflicts, with comparatively less attention paid to the investigation of causal pathways and mechanisms (Xu et al., 2016) (exceptions include Ide et al., 2020; Van Baalen and Mobjörk, 2018), and even less research identifies how concerted action can shift these pathways. As a result, The dominant discourse that disasters simply increase conflict risks validates securitised and top-down approaches to disaster management as a form of social control rather than providing multifaceted support to disaster- and conflict-affected populations (Baker & Ludwig, 2018; Pyles et al., 2017).

> ***there remains a lack of integrated understanding of the disaster-conflict-peace nexus and scant guidance on when, where, and how to act to reduce disaster-related conflict risks and increase peace potential.***

The present research contributes a more cohesive and grounded understanding of the disaster-conflict-peace nexus by presenting empirical evidence from 32 in-depth interviews with DRR professionals at the front lines in 25 disaster- and conflict-affected countries in the Middle East, South Asia, and Africa. The analysis (1) investigates disaster-conflict and disaster-peace pathways in places affected by ongoing violent conflicts, (2) elucidates how human actions and inactions determine these pathways, and (3) lays new groundwork for how DRR can influence these pathways toward peace.

Theorising the Disaster-Conflict Relationship

Disasters connect to conflicts through a complex chain, beginning with how disasters arise. The United Nations Office for Disaster Risk Reduction (UNDRR) defines disaster as: “A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts” (UNDRR, 2017). This definition underscores that disasters are not natural but are socially constructed through patterns and histories of human actions and inactions that give rise to vulnerabilities (Ball, 1975; Chmutina & von Meding, 2019; O’Keefe et al., 1976).

Where disasters occur in conflict-affected contexts, conflicts thus also contribute to the root and proximate causes of disasters (Peters, 2019; Peters, 2021; Wisner et al., 2004), suggesting that the relationship between disasters and conflicts is complex and may be reinforced through disaster and conflict vulnerabilities (Peters & Kelman, 2020; von Uexkull et al., 2016). Human actions and inactions –

including disaster mitigation and prevention, preparedness, response, recovery, and reconstruction – are referred to in this article as "disaster-related activities," and they are part and parcel of why and how disasters manifest as well as how they may contribute positively or negatively to conflict risks. Disasters and disaster-related activities are often coupled in this article, as they often cannot – and should not – be artificially separated.

When disasters are construed as exogenous and time-bounded natural events, the causal chains linking them to conflicts are misunderstood.

For example, exaggerating the role of climatic factors in the 2006–2010 drought in Syria underplays human culpability in both the creation of drought and the Syrian Civil War commonly associated with it (2011-ongoing) (De Châtel, 2014; Fröhlich, 2016). Decades of water mismanagement and large-scale overexploitation of water resources instrumentally contributed to extreme drought conditions, and the Syrian regime failed to respond to the drought in ways that lessened vulnerabilities and averted further humanitarian crisis. Other countries in the Levant experienced the same meteorological conditions but not the same armed conflict and political instability. This underscores that disaster-conflict links cannot be explained through the severity or frequency of natural hazards alone (Brzoska, 2018).

Layered Conditions and Pathways from Disaster to Conflict and Peace

This literature review focuses on the role of resource scarcities and distribution in linking disasters with violent conflicts and peace. When they are not avoided, disasters almost by definition lead to increased needs of survivors, which may be paired with a decrease in available resources. Much disaster-conflict research has adapted the environmental scarcity thesis to explain how disasters may increase conflict risks through relative deprivation, frustration, and weakened state institutions (Homer-Dixon, 1994; Kahl, 2006; Slettebak, 2012). For example, drought conditions may escalate resource competition over limited natural resources and, thus, violent conflict amongst pastoral communities in northern Kenya (Njiru et al., 2012), and dwindling freshwater and land resources may drive resource competition and violent conflict between farmers and pastoralists in Nigeria (Audu, 2014). Van Baalen and Mobjörk (2018) identified that natural resource scarcity in East Africa can degrade livelihood conditions, increase and change migration and mobility patterns, shape how armed groups make tactical decisions, and provide opportunities to exploit local grievances. However, the presence of formal institutions (e.g., resource management structures) and informal institutions (e.g., customary practises of sharing resources) mediate the relationship between natural resource scarcity and conflict (Linke et al., 2018). Beyond natural resource scarcities, disasters can create scarcities in other basic resources, like food and water, which have also been connected with increased conflict risks (Nel & Righarts, 2008).

The inequitable distribution of resources may further explain why disasters may lead to conflicts. Disasters are not "great equalisers," and disaster-related activities can not only fail to mitigate conflict risks but also serve to reinforce them. Disasters have a propensity to impact marginalised groups more frequently and intensely due to the vulnerabilities forced upon them (Susman et al., 1983), but resources spent on disasters (including disaster relief and DRR) tend to centre on and benefit the most privileged groups in society (Cuny, 1983). Furthermore, disasters can be leveraged as opportunities to advance political objectives like targeted marginalisation through post-disaster aid and development (Harvey, 2014; Klein, 2007). The inequitable distribution of post-disaster resources can lead to new or heightened grievances, which, in addition to promoting conflict on their own, can also be exploited by armed groups (Van Baalen & Mobjörk, 2018). An influx of resources can lead to shifts in relative bargaining positions of conflict parties and generate favorable conditions for rebel groups to recruit supporters and gather arms (Brancati, 2007; Brzoska, 2018; Kikuta, 2019; Nel & Righarts, 2008).

Enabling conditions common in conflict-affected contexts may promote these disaster-conflict pathways. Disaster-related resource scarcities alone may not lead to violence in the absence of contextual factors like "negative othering," low power differences, and recent political change (Ide, 2015), and they may have more pronounced effects on violent conflicts where intense competition over resources preexists (Brancati, 2007) and where there is ethnic fractionalisation and ethno-political exclusion (Brzoska, 2018; Couttenier & Soubeyran, 2013; Ide et al., 2020; Schleussner et al., 2016). Weaknesses (and sometimes strengths) in the institutional setting, poverty, and resource-dependent livelihoods have also been identified as characteristics that increase conflict risks following disasters (Brzoska, 2018).

Despite these pathways and conditions, disasters do not deterministically heighten conflict risks. For example, disasters can lead to patterns of conflict and cooperation in a single context that materialise at different points in the unfolding of a disaster and its response (Oliver-Smith, 1979; Pelling & Dill, 2010), and disasters have been linked to both humanising and "othering" adversaries (Le Billon & Waizenegger, 2007). Disasters have been found to act as windows of opportunity for change (Birkmann et al., 2010) and may even encourage conflict de-escalation, cooperation between adversaries, or formal peace processes. Regimes that respond capably and compassionately can earn popular support and promote social cohesion (Olson & Gawronski, 2010; Slettebak, 2012). Disasters can provide an impetus to strengthen or create new institutions that engender trust-building, including inclusive institutions that address disasters (Brzoska, 2018; Hyndman, 2009). Disaster relief and recovery activities that address the root causes of strained social relationships may function as a form of conflict prevention or peacebuilding (Arai, 2012), and international support and resources for peacebuilding in places of geopolitical importance may further bolster openings for peace processes in the wake of disaster (Klitzsch, 2014).

Exploring the Potential for DRR to Mitigate Conflict and Promote Peace

A nascent body of literature has explored how DRR may promote peace in pre-disaster phases including sustainable development as well as in post-disaster reconstruction and learning phases (Peters et al., 2019a; Peters & Peters, 2021). The field of DRR takes actions to save lives by systematically understanding and acting upon the root causes of disasters, and DRR activities can be integrated into all disaster phases, including pre-disaster prevention, preparedness, and mitigation; recovery (e.g., distributing relief in ways that prevent additional deaths and promote coping capacities); and reconstruction and learning (e.g., "building back better" and promoting a culture of prevention in sustainable development). Prevention may link DRR to peacebuilding, which encompasses a range of initiatives taken before, during, and after conflicts to prevent lapses or relapses into violent conflict (Peters & Peters, 2021).

Yet, there is a lack of guidance on how to conduct DRR in conflict-affected contexts (Peters et al., 2019b). The globally agreed Sendai Framework for Disaster Risk Reduction (2015) and other mainstream DRR policies and frameworks do not address issues related to conflict and peace in an effort to be perceived as politically neutral, even though conventional approaches to DRR, such as working primarily with state actors, in conflict-affected contexts can directly or indirectly play into conflict dynamics (Peters, 2019). Despite the challenges, DRR is possible even in high-intensity conflict contexts (Mena & Hilhorst, 2020), an evidence base to which the present research contributes, and DRR has the potential to work "on" (and not just around) conflicts through targeted and unorthodox approaches, such as engaging with non-state armed groups, informal institutions, or affected groups whose conflict and disaster vulnerabilities overlap (Peters, 2019; Walch, 2018).

***Beyond the equitable provision of resources, it may matter how* DRR activities are designed and implemented to explicitly promote cohesion, cooperation, and peace**

Methods

The present research seeks to explore and deepen an understanding of how disasters and disaster-related activities may be linked to violent conflict and to investigate to what extent and how DRR activities can influence these pathways and contribute to peace potential. To do so, I conducted in-depth semi-structured interviews with 32 DRR professionals with experience designing, implementing, and/or evaluating DRR programming in conflict-affected contexts. The participants worked with development, humanitarian, and advocacy international and national non-governmental organisations (I/NGOs), multilateral organisations, and networks in 25 countries in Western Africa, Northern Africa, Middle Africa, Eastern Africa, Western Asia, and Southern Asia (see Figure 1) (30 participants from these regions, 2 from US/Europe) (see Appendix A for a description of the participants and the disaster and violent conflict contexts).

I selected participants based on their on-the-ground and direct experience with DRR in conflict-affected contexts and their knowledge and interest in the topics of this research. I identified initial participants among participants of a pre-conference event on DRR in contexts affected by violence, conflict, and fragility hosted by the Overseas Development Institute at the Africa-Arab Platform on Disaster Risk Reduction in October, 2018 in Tunis, Tunisia. This participatory event opened formal space to discuss the challenges and imperative of implementing DRR in conflict-affected contexts. I recruited additional participants using snowball sampling methods, which are often used to identify participants with significant experience and knowledge, including those in conflict-affected areas (Cammet, 2006), by asking participants to refer DRR professionals with expertise on these topics. I terminated interviews when the study reached data saturation and new data became repetitive of previously collected data (Sandelowski, 2008).

Each interview lasted approximately 90-min on audio conferencing platforms (primarily Skype and WhatsApp) from January to March 2019. Remote interviews enabled practitioners in difficult-to-reach regions experiencing armed conflict and crisis to be included in this study. I asked the participants semi-structured interview questions (see Table 1) and tailored follow-up questions on the cumulative effects of disasters and disaster-related activities on violent conflict and peace and the atmosphere of vulnerability in which they arise rather than isolating the effects of a particular disaster on conflict and peace. All participants focused their responses on DRR programming, which was present to varying extents in all of the included conflict-affected contexts. Where DRR was integrated with disaster relief, these activities were considered relevant and described as "disaster-related activities." Disasters and social and political violence were considered relevant as described by participants which (1) occurred in the same places and time periods and (2) directly involved and affected the areas in which and people with whom participants conducted DRR programming. Participants discussed large- and small-scale,[1] rare and frequent[2] disasters, which similarly impact conflict and peace (Brzoska, 2018). Even relatively small and unreported disasters can have profound effects on people's lives, especially those living in the margins. Participants discussed violent conflicts spanning various levels of intensity and frequency (e.g., violent protests, mass riots, communal violence, one-sided violence, guerrilla activity, terrorism, and civil conflict) in active and post-conflict contexts.

I transcribed the interviews and assigned them with unique codes corresponding with region and interview number. For participants with professional experiences in multiple countries or regions, I specified the contexts relevant to the data excerpts. I conducted a data-driven thematic analysis following the six

Table 1. Semi-structured interview questions.

Questions
1. How do disasters impact conflict and/or peace dynamics?
2. Do DRR projects directly or indirectly contribute to conflict prevention or peacebuilding? If so, how?
3. Do DRR projects directly or indirectly cause or exacerbate conflict? If so, how?

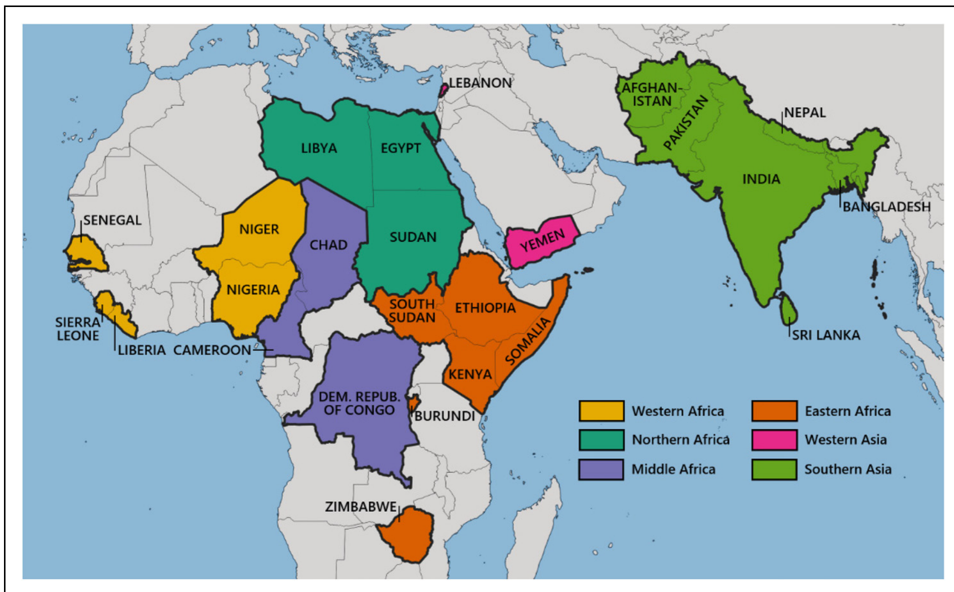

Figure 1. Countries included in the study are represented by geographic region defined by the Standard Country or Area Codes for Statistical Use (M49) of the United Nations Statistics Division (UNSD). Source: Author.

phases of thematic analysis established by Braun and Clarke (2006): (1) becoming familiar with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report. I reported the results with an overarching analytic narrative based on these themes which are representative of perspectives shared by all or nearly all participants, with succinct and illustrative extracts and quotes attributed to specific interviews. I retained and presented unique or contradictory passages to avoid artificially smoothing over tensions and inconsistencies within the dataset (Braun & Clarke, 2006). The last step of my methodology was to conduct participant validation by sharing a draft paper with the methods and synthesised results over email. I solicited participant feedback on accuracy and reflections on the overall content in an effort to co-create knowledge (Birt et al., 2016; Harvey, 2015). I incorporated participant corrections and comments into the final results.

Establishing Causal Pathways

Natural Resource Scarcities Play a Limited Role in Driving Conflicts

The data provided limited support for the theory that disasters drive violent conflict by creating or exacerbating conditions of natural resource scarcity, with evidence coming from East Africa. Multiple participants in the East Africa region discussed how droughts and floods can contribute to violent communal conflicts related to seasonal land and natural resource use involving pastoralists and farmers. One participant explained that violent communal conflict in Kenya and Ethiopia is driven by drought: "Whenever there is water and pasture shortage, there is always conflict over resources" (EAfrica06).

However, other evidence suggested that causation cannot be inferred from the sequencing of natural resource scarcity and conflict, and these relationships are not universal across places. Some groups

in South Sudan employ violence when gathering and defending resources like food and ammunition at the end of dry season when resources are scarce, but they do so in anticipation of decreased mobility and access to resources during the impending rainy season (EAfrica11). Violent communal conflicts in Niger tend to occur during the short rainy season when livestock graze, but “when dry season comes, then the conflict stops” (WAfrica15). Participants working in Ethiopia and South Sudan explained that drought may be reported by conflict parties as the cause of conflicts to justify and conceal what is actually political and territorial violence (EAfrica05; EAfrica11).

Basic Resource Scarcities can Exacerbate Conflicts

The data provided strong evidence that institutional failures to meet basic needs (e.g., food, water, power, medical care) surrounding disasters can exacerbate violent conflict risks. Virtually all participants discussed how disasters can increase needs for basic resources and services, which are often already high in conflict-affected areas. Across regions, these pressures can be met with weak formal and informal institutional capacities and unwillingness to cooperate to provide these resources and alleviate suffering. For example, a participant in Sudan described how youth attempted to become involved in disaster response following major floods in 2013 and 2015:

> The local government does not support these youth groups, because these are roles or services that the local governments should have been providing. They fear that the transfer to youth groups will reflect poorly on their image and…undermine their [political] power (NAfrica03).

Grievances may be doubly created by civil society’s unmet needs and unmet desires to cooperate.

Similarly, both governments and civil society may have a limited tolerance for international cooperation to meet needs. For example, the 2004 Indian Ocean Tsunami opened the door for INGOs to conduct humanitarian relief work in Sri Lanka, but after the emergency recovery period passed, the government asked most INGOs to leave the country due to suspicions of interference in national and local politics (SAsia29). I/NGOs working on disasters in conflict-affected areas inherently become part of the conflict, sometimes inadvertently and other times through directly attempting to influence politics. I/NGOs may also influence conflict dynamics through an influx of resources. For example, a participant working in Nepal described that militia groups extort I/NGOs and capture a considerable percentage of DRR resources, which can be used to support agendas for violence (SAsia25).

Inequitable Distribution of Resources Contributes to Political Conflict Risks and Social Cleavages

The data provided strong evidence that the inequitable distribution of resources is related to conflict risks. Many participants across regions explained that limited capacities for disaster-related activities may force them to be implemented unevenly or asynchronously, with some groups receiving benefits after others or not at all. For example, following the 2015 Gorkha earthquake in post-conflict Nepal, local governments distributed relief materials first and primarily to their political supporters, which threatened the national political peace process (SAsia23; SAsia24). In post-conflict Sri Lanka, frequent disasters create enormous needs, and the government provides resources mainly to target groups that align with their political agenda (SAsia29).

All participants noted that disasters tend to impact marginalised groups more severely and frequently, but multiple participants across regions of the study disclosed that disaster-related activities taken before, during, and after disasters often inequitably distribute resources (such as disaster mitigation and recovery

aid) in ways that reflect patterns of exclusion, marginalisation, and discrimination (i.e., structural violence). For example, according to the experiences of a participant in a region in India affected by violent communal conflict, post-disaster needs assessments are typically conducted by officials belonging to higher castes, who tend to prioritise the needs of those from the same caste and sideline those from lower castes in recovery and reconstruction (SAsia22). This not only leads to short-term effects on the ability of marginalised groups to meet their immediate needs, but inequitable "building back better" efforts further disadvantage them for future disasters. In places like Bangladesh, historical patterns of structural violence can make marginalised communities wary to accept DRR resources and support out of fear that they will lose ownership of their land when it is improved, leaving them at continued high risk of disasters (SAsia21).

The inequitable distribution of disaster-related resources can reinforce structural violence that fuels cleavages, and real or perceived deprivation may grow alongside the capacity of disaffected groups to fight.

When needs are unmet by formal institutions, communities are left to meet their own needs by procuring (and defending) resources, sometimes violently. During extended periods of drought, villages with water points are often unwilling to share their own depleted resources, especially when their own needs are unmet, and increasingly distressed groups may resort to the violent appropriation of resources to survive, as seen in participant experiences in Kenya, Somalia, Cameroon, Chad, Niger, Nigeria, and Senegal (EAfrica09; MAfrica/WAfrica15). Disasters can motivate people to strengthen intragroup ties and "other," exclude, and even place blame on outsiders, particularly where there is a turbulent history of interactions between groups. These social effects can escalate into violence. For example, a participant working in Burundi, the DRC, and Zimbabwe explained:

> The conflict may not initially be a violent conflict, but it may gradually move toward violent conflict when people feel their very survival is being threatened when they don't have access to a piece of land or area and where people who occupy those areas feel they are being threatened if they don't keep outsiders out of their areas (EAfrica/MAfrica04).

However, other participants described that people may at least temporarily support each other in the aftermath of a disaster. In some circumstances, the survival needs of a group more broadly defined (e.g., those affected by a disaster) take priority, and identity-based tensions may be temporarily set aside in places like Pakistan (SAsia26). Following deadly floods and landslides during active conflict in Cameroon, separatist groups and the military provided support and sympathy to victims and their families, which contributed to "resolving conflict in some situations" (MAfrica13). However, this temporary social effect did not extend to a political or durable peace.

Exploring Potentials and Limitations for DRR to Influence Causal Pathways

DRR can Work Through the Environment

DRR can play a central role in preventing disaster-related conflicts by preventing or mitigating disasters: where the manifestation of disasters contribute to the causes of conflict, disaster prevention can also contribute to conflict prevention. Disasters are in part created through human activities, like unsustainable resource management and patterns of development. For instance, people contribute to the creation of droughts in Kenya and Somalia due to the destruction of forests and environmental degradation (EAfrica09). Similarly, people cause floods in Sierra Leone through poor land management leading to erosion and discarding materials in waterways and overwhelming drainage systems. DRR activities can help avoid these

disasters: "After removing those [discarded] materials, everyone was happy, because this is the only year they never experienced flooding, but the rains were very heavy" (WAfrica17).

Working on natural resources, regardless of the strength of its relationship with conflict, can also be an entry point for DRR to address diverse causes of conflict and contribute to peacebuilding. For example, DRR activities can mitigate disaster risks in ways that also create shared local benefits and profits, such as water reservoir projects in Ethiopia and Kenya, which can serve as bridges to cultivating prosocial relationships (EAfrica06). These DRR activities move beyond "do no harm" and sometimes even explicitly seek to promote social transformation and peace: "It [DRR] safeguards resources, equitable share and access to those resources, and conversations around peacebuilding…that begins with the acknowledgement that there is a reason why we fight," explained a participant in Kenya (EAfrica07).

DRR can Work Through Politics

Where parties are motivated to meet immediate post-disaster needs, there may be opportunities to temporarily mitigate conflict and reduce vulnerabilities. Following a disaster, adversaries may pause hostilities and even engage in short-term cooperation, like agreeing to open borders to allow for the movement of humanitarian supplies or displaced people in Afghanistan (SAsia18) or arranging a temporary truce to enable I/NGOs to deliver relief items in Kenya (EAfrica07). The combination of halted violence and provision of humanitarian support can offer reprieve to beleaguered communities with longstanding unmet needs and simultaneously reduce disaster and conflict vulnerabilities. A participant in Libya claimed, "In a conflict situation, the best thing to happen is to have a natural disaster [sic]" (NAfrica02). However, this perspective was not shared by other participants. Disasters only rarely motivate political cooperation that improves local conditions at the peripheries of power, and communities engaged in high-intensity violence are most often left with meager or zero DRR support in the aftermath of disasters due to conditions of insecurity, based on participant experiences in Cameroon, Chad, Niger, Nigeria, and Senegal (MAfrica/WAfrica15).

Unmet public needs can aggravate popular grievances and bring awareness to problems in governance, which can be leveraged to effect positive political change. For example, a DRR programme in the DRC works to empower citizens to hold their decision makers accountable for delivering DRR-related resources:

> The effect on the people is that there is a revolt or an awakening that leads them to demand more, which in a way is a very positive thing for citizens around the world facing difficult situations…to demand more from their governments and duty bearers (MAfrica04).

Such DRR programming encourages peaceful collective action for change and fosters improved institutions and governance – both of which can extend to providing alternatives to violence regarding non-disaster issues.

Other participants suggested that disasters can stimulate the creation of new cooperative institutions between adversaries. For example, conflict parties in Afghanistan created a joint disaster response plan after experiencing a major disaster (SAsia18), though other participants noted that what is on paper does not always translate to practise in post-conflict places, based on participant experiences in Nepal and Sierra Leone (SAsia24; WAfrica17). Sustained DRR programming can help adversaries understand that the reduction of shared disaster risks requires cooperation to "work together as one system" (WAfrica17). For example, early warning systems for flooding on the Helmand River and Kabul River can forge – and indeed depend on – cooperation between riparian communities in Afghanistan with those in Iran and Pakistan, respectively, where upstream communities provide formal and informal flood warnings to downstream communities and, by doing so, strengthen good will and ties across political boundaries (SAsia18).

DRR more often seeks to "supplement and support" existing institutions involved in disaster-related activities, including through the provision of information and skills in programmes in Burundi, DRC, and Zimbabwe (EAfrica/MAfrica04). DRR programming is dependent on long-term relationships with local leadership in places ranging from Ethiopia and Kenya to Afghanistan (EAfrica06; SAsia18). A participant working in Kenya explained:

> It [DRR] requires a lot of diplomacy, a lot of networking, a lot of building relationships …We found that if you are able to get a community leader who becomes your advocate, they are able to champion the cause and translate some of the capacity-building interventions we have done for them and take it a step further [to reduce conflict] (EAfrica09).

A participant working in Ethiopia and Kenya described that existing institutions and practices "are the best community wealth" for conducting DRR, and including of clan leaders, elders, chiefs, community leaders, and religious leaders as well as government actors can provide avenues for "approaching conflict in different ways" corresponding with local capacities for peace (EAfrica06). However, a participant working in Sierra Leone warned that DRR must be careful not to align closely with contested leaders, because "certain communities might not be willing to be part and parcel about whatever that leader supports" (WAfrica17).

DRR can Work on Societal Relationships

Some of the most effective ways that DRR can influence causal pathways towards peace may be through community-based programming. In Yemen, DRR education and training programmes increase awareness of the norms that give rise to linked disaster-conflict risks and build capacities for youth-led peace activities (WAsia32). Fostering awareness and understanding of these patterns may represent a first step toward innovating solutions that reduce dual risks, and in-depth analysis into intersecting needs and vulnerabilities can be used to guide further programming. However, DRR programming must strike a balance with how it pushes for prosocial changes and gives "respect to local traditions and involvement of local community leaders" to be effective in places like post-conflict Liberia (WAfrica16). Virtually all participants across regions emphasised the importance of community ownership of activities. Opportunities to reduce disaster and conflict risks typically occur over long-term programming and trust-building, according to a participant in Lebanon (WAsia30).

DRR can appeal to intersectional identities that help people re-humanise their adversaries.

DRR must be sensitive to the identity dynamics of active and latent conflicts to ensure that programming does not exacerbate violence by working first or primarily with one ethnic group, for example, even if they have objectively greater needs, which corresponds with "do no harm" (EAfrica/MAfrica04). However, DRR programmes may also be able to influence former adversaries to find or create a common identity as they pursue solutions to "the same needs and problems" and work for "the greater good" (EAfrica09). DRR programmes in places like Egypt take an explicit future orientation to encourage people to create a safer society together rather than confront and become entangled in difficult aspects of a violent past (NAfrica01). Several participants working in Kenya, Libya, and Afghanistan explained that even people embroiled in violence want to play an active role in ensuring a better future for themselves and their children, and DRR can provide an entry point for creating that future together (EAfrica07; NAfrica02; SAsia18). A participant working in Libya shared,

> Here we are fighting at the same time what divides people in their communities and trying to create a forum for them where they see the commonalities between them and bring them back to how they can be more active citizens. It is important to focus on the process and not just the results…It's a challenge because

> you are dealing with human beings that are feeling hatred against them or fragmented society and feeling that they have no option or decision about the future for their children, so they don't have anything to lose in the context of manmade disasters or armed conflict. It [DRR] is like lighting a candle in the middle of this darkness (NAfrica02).

DRR may also strategically focus on inclusion and accessibility for a less divisive identity cutting across conflict lines, such as people with health conditions or impairments:

> You would have way more people from different diverse backgrounds and ethnicities coming together and forming groups, since they consider themselves as persons with disabilities first and not that particular group or community or identity. [This is a] small building block from which bigger peacebuilding and conflict prevention actions could be made" (EAfrica07).

DRR programming can support the development of shared informal institutions based on shared challenges. For example, communities in post-conflict Sierra Leone transcended tensions to form disaster management committees: "People helped each other, and this made people understand that they should help each other and work as a team in the face of challenges" not only in relation to disasters but also more broadly (WAfrica17). In flood response in Pakistan, a local policy was enacted for Muslim-based NGOs to provide aid only to non-Muslim communities and vice versa, which laid the groundwork for social practices of mutual assistance (SAsia26). In a disaster reconstruction project to build safer shelters in two villages embroiled in violent communal conflict in the DRC, the project facilitated a forgiveness ceremony to initiate the project, and this led to "both sides of the village beginning to work together to build shelters for each other [...] They were able to sort of turn that page of the conflict from the past" (MAfrica04). After the project concluded, villagers continued to build shelters across former conflict lines and doubled the number of shelters built through self-sustained cooperative action while also developing relationships resistant to violence.

Discussion and Policy Recommendations to Shift the Needle Forward

The findings refute simple conclusions about disasters or hazards as a cause of violent conflict, instead highlighting how disaster-related activities mediate these relationships. The results demonstrate that disasters and disaster-related activities have the potential to influence – but not determine – violent conflict risk and peace potential in conflict-affected regions; disasters can magnify or ameliorate existing conflicts and shape how subsequent conflicts are addressed violently or nonviolently. This research provides evidence that DRR is possible to varying extents in diverse contexts affected by violent conflict, though organisations tend to avoid or conduct minimal programming amidst high-intensity armed conflicts. The majority of participants in this study were actively working on peace either through an explicit programme aim or as a necessary foundation for effective DRR.

Disasters and disaster-related activities influence both conflict risks and peace potential through diverse and intersecting pathways that may occur simultaneously and restrain or catalyse each other, potentially stimulating uneven or even unexpected outcomes. For example, the findings suggest that a disaster can increase awareness of structural violence and poor governance, and this awareness may represent the first step toward overt conflict and eventually reordering relationships in ways that sustain peace (Curle, 1971). However, durable peace is a far from certain outcome where vulnerabilities to disasters and conflicts are mutually reinforcing.

The findings also suggest that DRR can contribute to conflict risk and peace potential at different institutional scales. For example, different social groups may act cooperatively to reduce their shared

disaster risks where state-sponsored services are limited, which could ameliorate communal conflict while magnifying conflict risk between civil society and the state. Regimes may try to avoid these conflict risks by stymying civil society participation in delivering resources, but this can inadvertently aggravate tensions, as was demonstrated in Sudan.

Disasters may create spaces for new interactions involving governments and social groups, which could lead to novel sources of conflict or cooperation.

DRR and disaster relief are often painted as politically neutral, but even seemingly innocuous activities (or lack thereof) can influence conflict risk and peace potential. It is important to recognise that in conflict-affected contexts humanitarian and development interventions including DRR become part of the conflict (Haider, 2014). Rather than striving to merely "do no harm" (Anderson, 1999), this research provides evidence that DRR can actively encourage pathways to peace potential through activities taken before, during, and after disasters that reduce vulnerabilities, improve equitable resource distribution, encourage cooperation, and, in some cases, find opportunities for social and/or political (re)integration (see Table 2). This may involve addressing cleavages and challenging historical norms directly, and in other cases, such as in Egypt, it may be advantageous to avoid contentious issues and instead focus on the future. DRR may have the greatest opportunities for advancing peace potential where programming is designed to address multiple pathways that are self-reinforcing.

The findings highlight the need for intentionality in the design and implementation of DRR in conflict-affected regions in order to reduce disaster and violent conflict risks and build peace, leading to the following policy recommendations:

1. The global DRR community must explicitly address issues of conflict and peace beyond "do no harm," in order to influence the relationships between disasters, conflicts, and peace. DRR may inadvertently contribute to conflict, but only through careful design and implementation will it contribute to peace. International DRR mechanisms should support DRR practitioners working in places affected by violent conflict with trainings on integrated disaster and peace programming and facilitate partnerships with organisations focused on peacebuilding and conflict prevention.
2. DRR should invest in and support diverse societal capacities at multiple institutional levels, keeping in mind that existing leadership may not represent all affected groups, including those that are marginalised and alternative actors. DRR efforts should learn from diverse experiences of affected people on the ground, including local initiatives to address the context-specific linkages between disasters, conflicts, and peace already underway. Effective DRR depends on social and political inclusion and cooperation, and, in turn, DRR should seek to catalyse the development of prosocial relationships, leadership, and institutions that can facilitate alternatives to violence.

This research relied on the experiences of DRR and not peacebuilding professionals, though applied work on disasters, peace, and conflict are not neatly partitioned. Future research should test context- and conflict-stage specific pathways for disaster-related activities to minimise conflict and support turning points toward peace.

Disasters may be ambivalent multipliers of conflict and peace, but peace-oriented DRR activities can sway the tides of change toward peace.

Table 2. Examples of how practical DRR strategies can reduce conflict risks and increase peace potential.

Disaster Influences on Conflict Risk	Sample DRR Strategies to Increase Peace Potential	Sample Limitations
Disasters and disaster-related activities create natural resource scarcities (limited support)	Change harmful environmental practices and unsustainable patterns of development; reduce vulnerabilities; develop positive sum resource-based solutions.	Natural resources may be misrepresented as a source of conflict, and interventions could inadvertently impact actual conflict dynamics at play.
Disasters and disaster-related activities create basic resource scarcities (mixed support)	Provide for immediate needs in ways that reduce vulnerabilities; increase awareness of systems of governance; develop skills in nonviolent advocacy; develop and support shared formal and informal institutions that jointly invest in DRR; provide resources to promote positive-sum solutions for stakeholders.	New cooperation can contribute to the creation of new allegiances and shifting power dynamics; awareness of gaps in governance could promote conflict.
Disaster-related resources are distributed inequitably (strong support)	Foster cross-group interdependency in the design and implementation of interventions; develop equitable post-disaster needs and capacity assessments; support inclusive structures of governance; challenge normalisation of marginalisation and inequities.	Equitable (and not equal) resource distribution could create new grievances; bringing conflict parties together could introduce new points of contention; advocating for social change could pit groups with different interests against each other.

Appendix

Appendix A. Description of participants and study areas.

Region	Code #	Country	Professional Role/s	Description of engagement with DRR	Disaster types	Violent conflicts
Northern Africa (NAfrica)	01	Egypt; Libya	Education Program Specialist (male) in an education international organisation (2008–2016)	Designed and conducted capacity development trainings for DRR in the education sector; designed programming to promote community cooperation and prevent tensions that could lead to violence that could also be applied in other contexts of political violence and instability	Floods; dust storms; droughts	Egypt: Armed political violence; political turnover Libya: Political turnover; armed political violence; civil war
	02	Libya	Organisational Development Delegate (male) in a humanitarian multilateral organisation (2018)	Designed DRR programming on early warning systems, community development, and capacity-building for communities to know when and how to act; designed programming to promote community cohesion and cooperation that could also be applied in other contexts of armed conflict and political instability	Flash floods	Civil war
	03	Sudan	Director of Urban Planning and Sustainable Development (female) in a urban development regional organisation; Consultant in a DRR multilateral organisation (2016–2018)	Conducted disaster resilience assessments in cities, including those engaged in armed conflict; conducted research on DRR engaging with conflict-displaced populations	Floods	Demonstrations; riots; armed conflict
Eastern Africa (EAfrica)	04	Burundi; Zimbabwe	Regional Emergency Manager for Central & Southern Africa (male) in a relief and development international NGO (2017–2019)	Conducted DRR embedded in emergency response and rehabilitation programming, including infrastructure improvement, to prevent cascading disaster impacts and crisis; implemented programming for community capacity building; worked to directly address the causes of conflict translating to violence at the community level	Burundi: Rapid soil degradation; droughts; floods; landslides Zimbabwe: Droughts; floods	Burundi: Political transition; violent political conflict; communal violence; gender-based violence Zimbabwe: Political violence; gender-based violence; protests and riots
	05	Ethiopia	Executive Director (male) in a development international NGO (2008–2019)	Designed and implemented community-managed DRR and resilience-building programming for drought and violent conflict involving pastoralists	Droughts	Violent communal conflicts; violent regional conflicts
	06	Ethiopia; Kenya	Consultant (male) in multiple development international NGOs (2010–2016)	Coordinated and managed DRR community resilience-building programming, in addition to designing and engaging mechanisms to address and manage violent conflicts involving pastoralists	Droughts; floods	Violent communal conflicts

(continued)

Appendix A. Continued

Region	Code #	Country	Professional Role/s	Description of engagement with DRR	Disaster types	Violent conflicts
	07	Kenya	Program Coordinator for Inclusive Humanitarian Action (male) in a development and advocacy international NGO (2018)	Designed and coordinated advocacy and programming for inclusive DRR in refugee camps and conflict-affected regions	Floods; droughts	Violent communal conflicts
	08	Kenya	Disaster risk management project coordinator in a development multilateral organisation; Global Climate Justice Coordinator (male) in a development and humanitarian international NGO (2011–2015)	Supported government and community DRR capacities through designing and conducting trainings, assessments, and consultations; considered violent conflict as part of the root causes of disasters that must be addressed in DRR	Droughts; floods	Violent communal conflicts
	09	Kenya; Somalia	East African Regional Development Coordinator (female) in a DRR international network; Programme Development Manager in a humanitarian international NGO (2008–2019)	Designed and conducted capacity-building and trainings for DRR, including supporting local disaster committees and training humanitarian workers on DRR; designed and implemented DRR projects within humanitarian response; facilitated sharing information and best practices across organisations; considered violent conflict an issue affecting disasters and DRR; conducted programming to promote community-level peacebuilding	Floods; droughts; environmental degradation; landslides	Kenya: Post-election violence; violent communal conflicts Somalia: Protracted violent conflict and instability; armed militias; violent communal conflicts
	10	Kenya; Somalia; South Sudan	Training of Trainer Advisor for East & Southern Africa (female) in a humanitarian aid, development, and advocacy international NGO (2012–2018)	Designed and implemented community-based resilience and mitigation for disasters and violent conflicts, including early warning systems, risk awareness, community cohesion, and livelihood strengthening and diversification; built on a foundation of conflict resolution and peacebuilding between communities	Droughts	Violent communal conflicts; armed militias; political violence
	11	South Sudan	Advisor of Resource Governance (male) in a development and human rights international NGO (2012–2019)	Supported community mobilisation in local areas to understand and prevent violent conflicts and disasters	Droughts; floods	Civil war; violent communal conflicts
	12	South Sudan	Forum Coordinator (male) in a development and humanitarian aid international NGO (2008–2019)	Conducted capacity building for community-based DRR; conducted trainings for emergency preparedness and response planning; designed “build back better” projects; designed and implemented community resilience programming; conducted all programming integrated with peacebuilding	Droughts; floods	Civil war; political violence; insecurity; violent communal conflicts
Middle Africa (MAfrica)	04	Democratic	Regional Emergency Manager for Central & Southern Africa (male) in a relief and	Designed emergency response and rehabilitation programming, including infrastructure	Floods; droughts	Armed militias; violent communal

(continued)

Appendix A. Continued

Region	Code #	Country	Professional Role/s	Description of engagement with DRR	Disaster types	Violent conflicts
		Republic of the Congo	development international NGO (2017–2019)	improvement, to prevent cascading disaster impacts and crisis; implemented programming for community capacity building; worked to directly address the causes of conflict; conducted programming to promote community cooperation		conflicts; gender-based violence
	13	Cameroon	Coordinator (male) in a DRR national NGO (2005–2019)	Supported community mobilisation to increase capacity and raise awareness about disasters; conducted DRR assessments; conducted programming to promote community cooperation	Floods; landslides	Violent separatist conflict; armed militias
	14	Cameroon	Co-Founder and Coordinator (female) in a natural resource management and DRR national NGO (2017–2019)	Developed and implemented environmental protection programming around waste disposal, flood prevention, and reforestation	Floods; landslides	Violent separatist conflict; armed militias
	15	Cameroon; Chad	Western & Central African Regional Development Coordinator (male) in a DRR international network (2016–2019)	Conducted advocacy to improve DRR programs and strategies to align better with community needs; implemented community-based DRR; considered violent conflict a part of disaster risk within programming; worked with communities to prevent violent conflicts	Cameroon: Floods; landslides Chad: floods; droughts	Cameroon: Violent separatist conflict; armed militias; violent communal conflict Chad: Protracted violent conflict; political instability; violent communal conflicts
Western Africa (WAfrica)	15	Niger; Nigeria; Senegal	Western & Central African Regional Development Coordinator (male) in a DRR international network (2016–2019)	Conducted advocacy to improve DRR programs and strategies to align better with community needs; implemented community-based DRR; considered violent conflict a part of disaster risk within programming; worked with communities to prevent violent conflicts	Droughts; floods	Niger: violent communal conflict; protests Nigeria: armed militias; violent communal conflicts; gender-based violence Senegal: demonstrations; riots
	16	Liberia	Acting Head of Country Office and Disaster Management Delegate (male) in a humanitarian multilateral organisation (2015–2019)	Conducted capacity building and training for DRR; managed communications for community engagement and accountability; conducted programming to promote community cooperation and coordination	Disease outbreak; floods	Post-civil war civil violence
	17	Sierra Leone	Resilience Programme Manager (male) in a development and humanitarian international NGO (2018)	Conducted community capacity building and infrastructure development	Floods; landslides; fires, diseases	Post-civil war communal violence; political violence
Southern Asia (SAsia)	18	Afghanistan	Associate Director (male) in a development and humanitarian international NGO (2008–2019)	Designed and implemented community-based DRR, including school-based programming and establishing community emergency response teams; conducted environmental improvement programmes	Earthquakes; floods; droughts; avalanches; winter storms	Intrastate armed conflict; armed militias; violent communal conflicts
	19	Afghanistan	Country Director (male) in a development and humanitarian international NGO (1995–2018)	Established and supported community disaster committees; developed emergency response plans; established early warning systems	Earthquakes; floods; droughts; avalanches; landslides; winter storms	Intrastate armed conflict; armed militias; violent communal conflict

(continued)

Appendix A. Continued

Region	Code #	Country	Professional Role/s	Description of engagement with DRR	Disaster types	Violent conflicts
	20	Bangladesh	Program Head for Disaster and Humanitarian Management (male) in a development national NGO (2018–2019)	Integrated DRR into disaster preparedness, response, and capacity building; supporting community disaster resilience	Floods; cyclones; landslides	Violent communal conflict
	21	Bangladesh	DRR Officer (male) in a DRR international NGO (2014–2019)	Coordinated DRR initiatives, including disaster prevention and early warning systems; conducted DRR assessments	Floods; cyclones; landslides	Violent communal conflict
	22	India	Consultant (male) in a DRR and community development national NGO (2014–2019)	Designed and conducted DRR training and awareness campaigns; conducted vulnerability assessments	Floods; earthquakes; cyclones; heat waves	Violent communal conflict
	23	Nepal	President (male) of a disaster management national NGO (1998–2019)	Coordinated national disaster policy work, including advocating for DRR in policy; designed and conducted DRR capacity-building workshops and trainings for professionals, government officials, and the general public	Landslides; earthquakes; floods	Civil war; post-civil war protests
	24	Nepal	Chairperson (male) of a disaster management national network (1988–2019)	Coordinated DRR programming at the national level; conducted advocacy for preparedness and risk reduction in policy	Landslides; earthquakes; floods	Civil war; post-civil war protests
	25	Nepal	General Secretary (male) of a disaster management national network (2001–2019)	Coordinated and facilitated DRR work across government and non-government; advocacy	Landslides; earthquakes; floods	Civil war; post-civil war protests
	26	Pakistan	Consultant (female) in a development and humanitarian multilateral organisation (2008–2019)	Designed and implemented capacity building for communities and local government; improved infrastructure	Avalanches; landslides; earthquakes; floods; cyclones; droughts	Armed militias; violent communal conflict
	27	Sri Lanka	Risk and Resilience Coordinator (male) in a humanitarian multilateral organisation (2003–2008)	Supported institutional preparedness for disaster response; designed disaster mitigation strategies	Tsunamis; floods; landslides	Civil war
	28	Sri Lanka	Head of Regional Office (male) of a development and humanitarian international NGO (2004–2010)	Designed and conducted community-based DRR and school programming, including awareness raising	Tsunamis; floods; landslides	Civil war
	29	Sri Lanka	Head of Department for Economic Security (male) in a development and humanitarian multilateral organisation (2004–2019)	Developed and conducted programming for disaster emergency response and preparedness; linked disaster response, recovery, and reconstruction with DRR; conducted youth development and school programming for DRR; conducted peacebuilding and social transformation programming	Tsunamis; floods; landslides	Civil war

(continued)

Appendix A. Continued

Region	Code #	Country	Professional Role/s	Description of engagement with DRR	Disaster types	Violent conflicts
Western Asia (WAsia)	30	Lebanon	DRR Program Manager (male) in a humanitarian national NGO (2010–2019)	Developed and conducted community-based preparedness for disaster and violent conflict response and intervention; conducted peacebuilding programming	Earthquakes; flash floods; storms	Violent communal conflict; political violence
	31	Lebanon	Head of Delegation and Programs Coordinator (male) in a humanitarian national NGO (2018–2019)	Conducted monitoring and evaluation of DRR programming for communities and schools specifically for areas affected by violent conflict	Earthquakes; flash floods; storms	Violent communal conflict; political violence
	16	Yemen	Acting Head of Country Office and Disaster Management Delegate (male) in a humanitarian multilateral organisation (2015–2019)	Provided support for communities affected by civil war, including displaced populations, with humanitarian relief integrated with DRR to prevent further crisis; mobilised and supported capacity building of volunteers through training; disaster response preparation	Floods; cyclones; droughts; disease outbreak	Civil war
	32	Yemen	Chairman (male) of a development national NGO (2015–2019)	Designed and conducted trainings for first aid; conducted disaster education and awareness campaigns; conducted peace trainings for youth	Floods; cyclones; droughts; disease outbreak	Civil war

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Notes

1. A small-scale disaster refers to "a type of disaster only affecting local communities which require assistance beyond the affected community," and a large-scale disaster refers to "a type of disaster affecting a society which requires national or international assistance" (UNDRR, 2017).
2. The frequency (and infrequency) of disasters "depend on the probability of occurrence and the return period of a given hazard and its impacts. The impact of frequent disasters could be cumulative, or become chronic for a community or a society" (UNDRR, 2017).

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