Sustaining peace through better resource governance: Three potential mechanisms for environmental peacebuilding

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A B S T R A C T

For international and domestic actors, post-conflict peacebuilding is one of the most difficult policy arenas to understand and in which to operate. Environmental and natural resource governance have the potential to facilitate peacebuilding in such contexts, but existing research has not yet produced a cohesive theoretical understanding of the pathways by which natural resource management strategies can facilitate positive peace. This paper explores the wider benefits of natural resource management and discusses their potential for reducing political fragility in affected states and helping to build positive peace. The paper outlines three mechanisms through which improved natural resource governance in post-conflict contexts is theorized to have positive effects on peace: (a) the contact hypothesis, whereby the facilitation of intergroup cooperation reduces bias and prejudice; (b) the diffusion of transnational norms, where the introduction of environmental and other good governance norms supports human empowerment and strengthens civil society; and (c) state service provision, where the provision of access to public services addresses the instrumental needs of communities, thereby strengthening their belief in the state. Guided by an interest in the opportunities presented by natural resource management to support peacebuilding processes in post-conflict states, the paper seeks to revise and advance the current environmental peacebuilding research agenda.

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1. Introduction

The challenges associated with peacebuilding in conflict-affected states and societies are rarely straightforward and the indirect, long-term effects of war compound them further. Beyond dramatically reducing violence and preventing a rekindling of/relapse into violent conflict, peacebuilding efforts seek to help societies and governments in post-conflict states reset their internal relations on a path to a more sustainable peace. The long-term effects of violent conflict have political, economic and social aspects: lasting impressions of human rights abuses committed during wars continue to shape relations among members of post-conflict societies for decades to come (Bar-Tal, 2007). Both socio-economic and political impacts challenge the stability and development of conflict-affected states for many years (Gates, Hegre, Nygård, & Strand, 2012). The risks to public health are especially profound and disproportionately affect the civilian population (Ghobarah et al., 2003). Lack of sanitation and inadequate access

to potable water are examples of major sources of such harms and risks (Gleick, 1993). These environmental infrastructures are frequent casualties of contemporary violence (Sowers, Weinthal, & Zawahri, 2017; Weinthal & Sowers, 2019). Environmental and climate change expose both post-war populations and peace operations to further risks, thereby exacerbating the impacts of conflict even after active combat has long since concluded (Barnett & Adger, 2007; Eklöw & Krampe, 2019).

The international community, which includes peacebuilding and development agencies, increasingly acknowledges this complexity and the related challenges (Aldinger et al., 2018; Born, Eklöw, & Mobjörk, 2019). For instance, Achim Steiner, Administrator at the United Nations Development Programme (UNDP), emphasizes the need to connect our understanding of these complex, disparate drivers of conflicts and the need to address the broader developmental failures that often underpin insecurity and conflict.[1] The UNDP, the UN Environment Programme (UNEP) and other UN agencies are increasingly searching for better pathways to conflict-sensitive programming, that is, ways to minimize the negative impacts of their work in the field. This interest moves

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[1] Personal conversation, Achim Steiner, UNDP, 7 February 2018.

beyond do-no-harm principles to specifically maximizing the positive impacts of reducing conflict. Thus, the UN Department of Field Support (DFS) stated in its 2017 Environment Strategy that UN peace operations should "seek a positive long-term legacy through the development of specific environment-related projects that may benefit societies and ecosystems over the long term" (United Nations Department of Field Support (DFS) 2017).

Although there have been demonstrable successes in addressing whether environment-related projects contribute to peace (e.g., Conca, 2001), there is little understanding of or research on how and why environment-related projects contribute to such positive peace legacies (Krampe, 2017). Recent research on environmental peacebuilding has made a host of important advances (Beevers, 2019; Ide, 2020; Ide, Bruch, et al., 2021; Ide, Palmer, & Barnett, 2021; Lee, 2020; Swain & Öjendal, 2018; Johnson, Rodríguez, & Quijano-Hoyos, 2021; Dresse, Fischhendler, Nielsen, & Zikos, 2019). To date, however, scholarship has been less successful at theorizing a causal understanding of natural resource management in post-conflict settings and its contribution to positive peace. In seeking to address this knowledge gap, this article builds on preliminary findings from an earlier single case study to theorize explanations for how environmental cooperation might facilitate the processes of sustaining positive peace, providing examples to illustrate these mechanisms. To this end, the article outlines three carefully defined causal mechanisms that: (a) contribute a better theoretical understanding of the dynamics and steps of environmental peacebuilding; (b) bridge the often still divided environmental governance and peace and conflict research literature; and (c) connect scholarly research agendas to actionable development and peacebuilding processes.

The focus is on environmental peacebuilding—defined in its narrow sense as the conflict-sensitive and sustainable management of renewable natural resources in conflict-affected or post-conflict states—that supports "the ecological foundations for a socially, economically and politically resilient peace" (Krampe, 2017, p. 1). We theorize three mechanisms of environmental peacebuilding that link well-established and well-theorized processes from peace and conflict research to insights from environmental and natural resource governance. The article seeks to contribute to longer-term research on peacebuilding and natural resource management in conflict-affected states. Moreover, it endeavours to inform practical application in policy development and programmatic initiatives in areas of natural resource governance in post-conflict countries, and to provide indicators and initial operationalizations for assessing the impact of environmental interventions and their effects on positive peace.

Following a brief review of the research on environmental peacebuilding and a critique of previous work, which identifies some of its limitations and suggests ways forward, the article outlines three mechanisms for environmental peacebuilding, providing examples of their practical application. The conclusion summarizes the arguments and findings, and provides suggestions for much needed future research.

2. Schools and definitions of environmental peacebuilding

Environmental peacebuilding emerged in the late 1990s largely as a critique of the dominant research focus on environmental conflict (Conca & Dabelko, 2002; Krampe & Swain, forthcoming). Environmental peacebuilding research has since produced rich empirical studies focused, among other things, on cooperation and rivalries over shared water resources between states (Ide, 2018; Swatuk, 2015; Wolf, 1998; Zeitoun & Mirumachi, 2008), the role of high-value extractive resources in sustaining armed conflicts (Ali, 2007; Beevers, 2015; Johnson, 2021; Rustad &

Lujala, 2012) and the roles of environmental services, and climate change adaptation and mitigation (Eklöw & Krampe, 2019; Kashwan, 2017; Krampe, 2016; Matthew, 2014; Swatuk, Thomas, Wirkus, Krampe, & Batista da Silva, 2020).

In its broadest sense, environmental peacebuilding can be defined as the sustainable management of natural resources before, during or after conflict, emphasizing the potential for environmental governance—especially cooperative governance between conflict actors—to support peace and stability. This conception is broadly consistent with Ide, Bruch, et al. (2021) and Ide, Palmer, et al. (2021) which sees environmental peacebuilding as "multiple approaches and pathways by which the management of environmental issues is integrated in and can support conflict prevention, mitigation, resolution and recovery" (Ide, Bruch, et al., pp. 2-3, 2021; Ide, Palmer, et al., 2021). Krampe (2017) identifies noteworthy distinctions in much of the literature—especially around the meaning of peace and stability—that suggest two dominant perspectives: cooperation perspectives and resource risk perspectives.

First, cooperation perspectives focus on taking a collaborative approach to managing the environment and natural resources in order to facilitate peacemaking through spillover effects. Scholars tend to focus on interstate relations rather than intrastate post-conflict peacebuilding. The consideration of positive peace outcomes—that is, peace conceived more broadly than the absence of violence and which includes elements such as human security, equity and the absence of structural violence in the relationship between citizens and the state (Diehl, 2016; Galtung, 1969)—constitutes a distinct aspect of this research. Such outcomes are more often assumed, however, than explicitly measured.

Second, resource risk perspectives emphasize the risks of resource-induced instability. Often focused on intrastate conflicts, including the context of peace operations, this research is centred on the need to address these risks and to sustain the absence of violent conflict, or negative peace (Galtung, 1969), by facilitating environmental cooperation.

2.1. The cooperation perspective

Conca outlined the first theoretical framework for environmental peacebuilding, suggesting that "carefully designed initiatives for environmental cooperation" could help build peace through their effect on large societal shifts, the cost-benefit calculations of different actors, and actors' perceptions of each other (Conca, 2001, p. 227). Empirical assessments of cases highlighted two mechanisms that could affect these variables: "changing the strategic climate", or shaping the cost-benefit calculation of state actors to make engaging in conflict higher risk; and "strengthening post-Westphalian governance", or disseminating new transnational norms to change society more broadly (Conca & Dabelko, 2002, p. 9). These assessments supported the hypothesis that addressing environmental challenges could serve as an entry point for peacemaking and peacebuilding (Conca & Dabelko, 2002).

The literature on water governance in fragile states focused on the potential of cooperation but also looked at the issue of asymmetric power dynamics (Zeitoun & Mirumachi, 2008). Many examples of research on transboundary water management demonstrate how in the face of water scarcity, nations successfully cooperate to manage the resource, thereby challenging the conflict narrative (Jägerskog et al., 2014). Water disputes do not generally cause armed conflict, but are instead often resolved through cooperation between states (Delli Priscoli & Wolf, 2009). Institutions, as well as power asymmetries, geostrategic location or understanding new water users' needs, can also lead to cooperation and the building of relationships in other domains (see also

Ide & Detges, 2018; Swain, 2012). How treaties are negotiated or joint river commissions set up is a notable determinant of how such disputes are usually resolved (Mitchell & Zawahri, 2015). Water diplomacy has thus emerged as a way to manage water issues and offers an approach to linking science with policy (Islam & Susskind, 2013). Thus, water diplomacy can (ideally) transform suspicion between countries, reduce uncertainty, stress narratives focused on opportunities for mutual gain and set an example of interaction, interdependence and societal linkages (Conca, 2001; Krampe, Van de Goor, Barnhoorn, Smith, & Smith, 2020; Krampe & Gignoux, 2018). The diffusion of bilateral cooperation over water resources to other areas is a common phenomenon (Swain, 2015). Recent studies show that positive interactions around water have resulted in more peaceful relations between states (Ide & Detges, 2018). Emphasizing the importance of governance, some research has suggested that the real challenge is the lack of a clear strategy for regional peace through water sharing in conflict-affected regions (Grech-Madin et al., 2018).

While the focus of these studies is solely on interstate relations, another growing area of research highlights the role of water in intrastate conflict and post-conflict recovery. Studies in this area are empirically rich and focus on how water can support post-conflict recovery, but also spark conflict through its effects on individual and community livelihoods (Troell & Weinthal, 2014). Furthermore, research on, for example, the Israeli–Palestinian water conflict has found that social and political factors, such as group identities and local discourses on water management, serve as the drivers of conflict, which offers new ways to understand post-conflict water resource management (Ide & Fröhlich, 2015, p. 668).

Beyond water, trans-frontier conservation areas or peace parks have been highlighted for their potential to stimulate environmental cooperation. For example, scholars suggest transforming the status of demilitarized zones from de facto to formally protected areas, which could promote a discourse and a focus on cooperation and biodiversity conservation rather than border security and division. This cooperation could then foster an increase in trust between nations, while also facilitating livelihood opportunities for local communities through ecotourism, among other things (Ali, 2007). Peace parks have been proposed in the Balkans (Walters, 2015), the demilitarized zone between North Korea and South Korea (Healy, 2007), and the border between Pakistan and India (Swain, 2009). However, critics of peace parks have stressed that the complexity of politics can hinder successful cooperation on transnational conservation (Duffy, 2006). Other scholars have raised concerns that the idea could promote a neoliberal agenda in developing countries (Swatuk, 2014).

While the cooperation perspective has the potential to advance theoretical development, it features two salient problems. First, most modern armed conflicts—and, by extension, most post-conflict peacebuilding—are concerned with *intrastate* dynamics, but cooperation perspective research focuses predominantly on *interstate* relations. Ide, Bruch, et al. (2021) and Ide, Palmer, et al. (2021) note that much environmental peacebuilding research is focused on top-down leadership rather than bottom-up initiatives. Second, cooperation perspective research generally does not empirically measure the impacts of environmental cooperation on peace, but instead makes environmental cooperation an endpoint in itself. Such an approach creates problems for theory development, as the beneficial impacts of environmental cooperation on peace are assumed rather than empirically proved. Indeed, there is research that suggests that mutual efforts by communities do not always immediately lead to more peaceful relations (Krampe, 2016), and at times may even have unanticipated consequences that are more destabilizing (Ide, 2020; Swatuk et al., 2020; Johnson et al., 2021).

Recent studies make more effort to focus on mechanisms that connect environmental cooperation to peace. At the interstate level, Ide, among others, suggests that environmental cooperation "is contingent on a number of scope conditions, such as high environmental attention, internal political stability, wider patterns or traditions of environmental cooperation, and already ongoing processes of reconciliation" (Ide, 2018, p. 351). These new studies indicate that peacemaking and peacebuilding opportunities would be enhanced by addressing environmental issues. Other research has highlighted the need to derive improved understandings and lessons from the peace and conflict literature that go beyond the above- mentioned suggestions. In a case study of East Timor, Krampe and Gignoux suggest three mechanisms that could explain the peacebuilding effect of environmental cooperation in post-conflict peacebuilding: the contact hypothesis, the diffusion of transnational norms and the service provision/extraction equilibrium (Krampe & Gignoux, 2018). A study on peacebuilding and natural resource governance following the wars in Sierra Leone and Liberia (Beevers, 2019) provides empirically rich insights embedded in a thorough theoretical framework. Beevers shows how the normative impetus of liberal peacebuilding activities—focused on the marketization and securitization of the conflict resources that drove these wars—made issues such as land ownership, environmental protection and sustainable livelihoods invisible. The consequence, Beevers argues, has been the return of the pre-war governance arrangements in which corruption, exclusion and exploitation took root.

2.2. The resource risk perspective

The second perspective on environmental peacebuilding emerged as the UN's interest in conflict and natural resources grew. In the 1990s, driven in part by a UNEP initiative under the leadership of Klaus Töpfer, there was increased attention among UN actors in natural resources in post-conflict peacebuilding contexts. Against a backdrop of the civil wars of the that decade, notably in Liberia and Sierra Leone, and an increasing concern that resource scarcity, especially of water, might fuel conflicts and cause conflicts to relapse, UNEP increased its work on post-conflict issues and contexts (Krampe & Swain, forthcoming). The 1990s saw a higher number of resolutions adopted by the UN Security Council than in previous decades, and an increase in the number of resolutions that specifically referenced natural resources (Aldinger et al., 2018).

The UN Peacebuilding Commission, which was established in 2005 with a mandate to advise the General Assembly and the Security Council on integrated, strategic and coherent approaches to peacebuilding and longer-term conflict prevention, also highlighted the need for increased attention to be paid to natural resources in peacebuilding (Swain & Krampe, 2011). The Commission and other UN actors increased their cooperation with UNEP, which led to an increase in joint research. This has had a lasting effect on the environmental peacebuilding discourse and shaped resource risk perspectives in at least three ways. Resource risk perspectives typically tend to: (a) work in settings where resource-induced conflict is perceived as a challenge for post-conflict peacebuilding; (b) focus on the intrastate level and UN peacebuilding in particular; and (c) broadly include renewable and non-renewable resources.

Researchers identified the mismanagement of natural resources as a key reason for conflict relapse (Jensen & Lonergan, 2012). A "greed theory" of civil conflict—in which the exploitation of natural resources by rebel groups explains the outbreak of civil wars (Collier & Hoeffler, 2004; Le Billon, 2001)—strongly influenced theories about the relationship between natural resources and conflict relapse. In one of its first reports on natural resources in post-

conflict peacebuilding, UNEP related the mismanagement of natural resources to approximately 40 percent of all violent conflicts (United Nations Environment Programme (UNEP), 2009). As a consequence, the report underlined the need to develop UN capacity in natural resource management in order to better mitigate potential conflict relapse (United Nations Environment Programme (UNEP), 2009, p. 7). UNEP reports targeted at UN agencies and peacebuilding staff emphasized the need to include the issue of sustainable natural resource use in peacebuilding to "capitalize on the potential for environmental cooperation to contribute to peacebuilding" (United Nations Environment Programme (UNEP), 2009, p. 5).

UNEP launched a comprehensive independent research initiative to inform the UN debate on natural resource management. The resulting research helped UNEP position resource-related issues within UN peacebuilding operations, research and administration. Its efforts resulted in a significant analysis of 150 empirical case studies that stressed the role of natural resources in post-conflict recovery. However, the studies gave equal weight to analysing natural resources as conflict triggers. Jensen and Lonergan, for example, argued that "integrating natural resource management and environmental sustainability into peacebuilding" was the way to avoid unchecked exploitation after conflict (Jensen & Lonergan, 2012, p. 9). Unruh and Williams (2013) assert that land reform issues often destabilize post-conflict countries, which makes "aligning land and property interventions" in peacebuilding work crucial (Unruh & Williams, 2013, p. 16). Troell and Weinthal (2014) identify proper management of water resources as a critical element of peacebuilding. Failure to address water issues can undermine peacebuilding efforts as community livelihoods are affected by the social and economic implications of water access.

Overall, this research proved invaluable. The work expanded the research community and led to a unique knowledge platform based on evidence and a community of practice.[2] The research illustrated the critical functions of natural resources and their management in post-conflict settings. Furthermore, it heightened awareness of the challenges facing and shortcomings of various UN actors, including the UNDP, UN Women, and the Department of Peacekeeping Operations (DPKO), which is now known as the Department of Peace Operations (DPO).

However, this research agenda has its limitations. First, while UNEP's work securitizes the issue of natural resources among UN peacebuilding actors, it also depoliticizes the solutions. Like the cooperation perspective, its technocratic and policy-oriented approach fails to advance a more comprehensive theoretical and political understanding of natural resource management in post-conflict settings and its potential to facilitate peace (Ide, 2020; Aggestam, 2015; Krampe, 2017). It is therefore still unclear whether environmental cooperation and resource management efforts support peace processes because, in the end, the studies only suggest that conflict risks increase when post-conflict natural resource management is neglected.

A second limitation arises when debating the merits of conflating renewable and non-renewable resources. Rustad and Lujala (2012) show that a focus on non-renewable, high-value resources generates important insight into economic mechanisms. However, the debate on greed and grievances in peace and conflict research has advanced, abandoning greed-based explanations in favour of grievances (Cederman et al., 2013; Fearon & Laitin, 2003; United Nations, & World Bank, 2018). A disaggregation of renewable and non-renewable resources in future studies would appear to be useful, as the relationship between each resource type and the potential for conflict could differ. While there is substantial evidence of a connection between armed conflict and the presence of high-value

non-renewable natural resources, there is a comparative paucity of research on the relationship between armed conflict and high-value renewable natural resources (Koubi et al., 2014).

Third, focusing on the risk of resource-induced conflict can have unforeseen or unintended effects or consequences. As Ide (2020) cautions, "Only with sufficient consideration of these adverse effects, their interactions and the associated risk factors will environmental peacebuilding be able to fully develop its potential to simultaneously address environmental problems and threats to peace" (Ide, 2020, p. 1). The emphasis on resource-induced conflict stresses the securitization of natural resources and the risk of conflict, thereby neglecting the many opportunities that natural resource management creates for generating positive peace (Krampe, 2017: Maertens, 2018; Krampe, 2021). Such a framing can draw attention to the goal of preventing conflict relapse, but it also emphasizes the perspective that peace solely entails the absence of violence, rather than the long-term, productive outlook of a positive peace.

3. Advancing environmental peacebuilding research

Research from both the cooperation and risk perspectives has often focused rather narrowly on natural resources and paid too little attention to the dynamics and challenges of natural resource management interactions, and the social and political processes in post-conflict states (Aggestam & Sundell-Eklund, 2013; Krampe, 2017). In addition, aspects of ecology and environmental stewardship—as well as ongoing learning to better address equity issues in environmental policymaking and outcomes—are still too often neglected by "conventional" peacebuilding and international relations, which more often focus on aspects such as political and economic liberalization, security sector reform and transitional justice. While certainly important, such a focus can fail to incorporate knowledge from the wider field of comparative environmental politics and policymaking.

One way to enrich our understanding of environmental peacebuilding and how it can assist in producing positive peace dividends is to narrow the scope of inquiry to focus on a small set of plausible causal pathways or mechanisms while at the same time better integrating the peacebuilding and environmental studies research literatures. Such an effort would seek to develop theoretically derived mechanisms for subsequent, rigorous empirical testing and further development. This section does just that by narrowing the scope of inquiry and generating theoretical explanations for how environmental and natural resource management can contribute to a positive peace.

In narrowing the scope of inquiry, we focus on intrastate armed conflict and understand peacebuilding as grounded in relationships between society and politics—in particular the state (Migdal, 2001). Myriad interactions between domestic non-state and state actors therefore influence peace processes. In international peacebuilding interventions, the relational dynamics between various international and domestic actors affect the resulting domestic relationship between society and the state. This is observable, for example, in the international peacebuilding interventions in Bosnia and Herzegovina, East Timor and Kosovo (Krampe & Ekman, 2020), where hopefully local actors perceive the presence and actions of foreign peacebuilders as not only necessary, but legitimate (Karlborg, 2014). Either way, we assert that as the domestic relationship between society and state comprises the basis of the post-war social and political order, its perceived legitimacy is of the utmost importance (Krampe, 2016; Themnér & Ohlson, 2014).

Conca argues that "carefully designed initiatives for environmental cooperation can create specific, tangible political opportu-

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[2] The knowledge platform is accessible at www.environmentalpeacebuilding.org.

nities to build more broadly peaceful international relations" (Conca, 2001, p. 227). We take seriously the phrase "carefully designed initiatives" and seek to remain mindful of the risks of adverse effects outlined by Ide (2020). Based on the growing body of empirical scholarship discussed above, we theorize three causal mechanisms that seek to explain why environmental cooperation can facilitate a positive peace:

(1) the contact hypothesis (i.e. that facilitation of intergroup cooperation reduces bias and prejudice);
(2) diffusion of transnational norms (i.e. that the introduction of environmental norms supports human empowerment and strengthens civil society); and
(3) equitable state service provision (that the provision of and access to public services address the instrumental needs of communities, thereby strengthening state legitimacy and state-society relations) (see also Krampe & Gignoux, 2018).

We argue that these three conceptually distinct mechanisms advance previous research on post-conflict natural resource management by more clearly facilitating theory-driven explorations of the interactions between social, political and ecological processes in post-conflict settings over a long period. Each mechanism is developed below in greater detail than in previous work, and each is explicitly connected to the work of a host of other scholars across several cases. We seek to define a detailed framework that links scholarship and practice, and that can be tested and assessed in future research and practice.

4. Three mechanisms for environmental peacebuilding

4.1. Contact hypothesis and cooperation

Building on Allport's seminal work on the contact hypothesis (Allport, 1954), we would expect intergroup cooperation during the implementation of post-conflict natural resource governance projects to be a viable pathway to increasing the socio-economic well-being of communities and overcoming inter- and intra-communal grievances by fostering group cohesion and reducing biases and prejudices.

The contact hypothesis asserts that increased contact and cooperation between adversarial groups can surmount prejudice and distance. While the evidence is not entirely consistent, research has demonstrated that cooperation between various groups can lessen prejudice towards different group members (Pettigrew, 1998). Research on the contact hypothesis in post-conflict peacebuilding contexts indicates that intergroup bias in these complex settings can be reduced by contact between belligerents. This contact can also lead to reconciliation, as it can "transform" members' representations of membership from separate groups to a single inclusive group (Dovidio et al., 2008, p. 235; see also Gibson, 2004). According to contact theory, when actors in competing groups gain meaningful exposure to each other, there is a higher likelihood that prejudices will diminish and broken relationships will be repaired (Allport, 1954; Pettigrew, 1998). Pettigrew et al. stipulate that when two groups have equal status and intergroup cooperation is voluntary, contact will facilitate a positive impact (Pettigrew, Tropp, Wagner, & Christ, 2011). By contrast, intergroup contact can enhance prejudice when "participants feel threatened and did not choose to have the contact" (Pettigrew et al., 2011, p. 277). Some studies have found that under the positive conditions outlined by Pettigrew et al., contact leads to a reduction in intergroup fear and in perceived and symbolic threats to physical security and well-being (Tausch et al., 2007). The observable implications of the contact hypothesis in peacebuilding contexts

are well established. Among the most common are shifts in mindsets and increased perceptions of trust between groups, as well as changes in understandings of social distances, ethnic tolerance and past transgressions (Kostić, 2007).

Linking the contact hypothesis to development, recent findings indicate that post-conflict natural resource management can offer opportunities for cooperation among community members and can positively contribute to peacebuilding (Kashwan, 2017; Johnson et al., 2021). This should have positive effects on relationships within the community.[3] Several examples indicate that cooperation among community members over natural resources increases community cohesion and trust building (FAO, 2017; Krampe, 2016). In Nepal, community-based, climate-sensitive micro-hydropower projects designed to bring electricity to rural villages illustrate the potential of this mechanism. This research not only identified substantial socio-economic successes regarding women's empowerment, as well as better access to education and increased economic opportunities, but also found increased community cohesion and stronger local governance structures (Krampe, 2016). In the village of Rishmi, for example, the success of local cooperation reaffirmed the community's belief in its ability to take charge of its own interests and confirmed that it could do so successfully. Even though the project contributed to the local perception of a widening gap between Nepali state actors and the local community—a potential "dark side" of environmental peacebuilding projects (Ide, 2020)—the successful implementation of the micro-hydropower project through local labour and financial contributions strengthened the village's sense of self-reliance and resilience. Local villagers told how: "The people from the village brought this. We all contributed money in this. We all brought it together. We all worked for it". Villagers with similar projects, such as those in Kharbang, also articulated a sense of increased local cohesion: "In my experience, we can do it" (Krampe, 2016).

There are also indications that mediation processes by external actors can help build trust and cohesion around natural resource issues. The Food and Agricultural Organization (FAO) of the UN project in Abyei, South Sudan, linked community-based animal health services with natural resource conflict mitigation. The community animal health workers' training and vaccination programmes, for example, were seen as highly instrumental in facilitating dialogue between the Misseriya and the Ngok Dinka ethnic groups. These programmes helped build trust between ethnic groups, thereby facilitating peace (FAO, 2017).

Castro (2009) documents how the Near East Foundation's training efforts on community mobilization, conflict resolution, natural resource management and peacebuilding in Darfur, Sudan, resulted in reduced conflict, both between farmers and herders and among each group, in at least 240 instances. By applying the principles learned during the training workshop, a local administrator formed a reconciliation committee of all the relevant stakeholders, which discussed compensation and established livestock passage routes. Once the rules were agreed, no further incidents of conflict were reported.

Finally, using the case of Colombia, Morales-Muñoz, Löhr, Bonatti, Eufemia, and Sieber (2021) illustrate how sustainable land-use systems can contribute to peacebuilding. Jointly designed and implemented inclusive projects on sustainable use of land can increase trust between stakeholders, including between citizens and the state. The enhanced trust contributes to the peacebuilding process, as stakeholders come to realize that they have common interests.

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[3] Ide and Scheffran suggest a similar mechanism around trust and understanding building (Ide & Scheffran, 2014, p. 276).

These results from Nepal, South Sudan, Sudan and Colombia indicate that projects that build on communal participation, and thereby promote contact between community members for mutual gain, have the potential to increase cohesion and trust. In this way, they can play important roles in facilitating the growth of local institutions and addressing people's vulnerability and fragility, which can ultimately contribute to achieving a positive peace. In Diehl's (2016) terms, attention shifts in both practice and research from short-term events to longer term processes.

4.2. Diffusion of transnational norms

Scholarly interest in the constitutive and regulative influence of norms has been robust since the 1990s, and has included a substantial focus on the roles of international organizations and transnational initiatives as promulgators and diffusers of institutionalized norms on security, human rights, authoritarian transitions and democratization, and political economy (Greenhill, 2015; Andonova & VanDeveer, 2012; Finnemore, 1996; Katzenstein, 1996; Kratochwil, 1989; Linden, 2002; March & Olsen, 1989; O'Neill, Balsiger, & VanDeveer, 2004). Norms—or shared understandings of appropriate and inappropriate behaviour—shape actors' choices, behaviours and identities. Norms are therefore essential to building and sustaining more peaceful and cooperative social and political institutions over time—and to protecting ecological and human health and engendering more sustainable resource management and consumption. In Cronin's terms, consciously or unconsciously, domestic and international peacebuilding actors in post-conflict contexts are "socializing agents" (Cronin, 1999). For example, Conca contends that, "environmental collaboration might affect the institutionalization of new norms of cooperation, alter state and societal institutions, or create or affect *trans*-societal linkages" (Conca, 2001, p. 227).

International peacebuilding actors—both governmental and non-governmental—bring and promulgate their norms and engage with local communities through countless social interactions, thereby helping to shape intersubjective norms. This mechanism can produce unintended outcomes (Björkdahl et al., 2016). Global environmental governance scholarship illustrates both the positive effects of transnational norm diffusion (Roger & Dauvergne, 2016) and the more complex co-construction and indigenization of global norms in more local contexts (Kauffman, 2017). Thus, natural resource management can facilitate trans-societal linkages among different civil society actors, which can have positive effects on both peace formation and natural resource management outcomes. A strong civil society in post-conflict peacebuilding has "the potential to make a more locally resonant and sustainable form of peace" (Richmond, 2013, p. 396).

International and domestic post-conflict priorities such as access to water, sanitation and hygiene services provide simultaneous opportunities for public health improvements, human empowerment and social norm construction, with potential cascading effects over time on other societal institutions such as the patriarchy and the role of women or national identity. The often invoked, but less often practiced, concept of gender mainstreaming serves as an example here. Substantial attention to gender roles and norms—as well as to human rights and fair access norms—in the context of water and sanitation strategies in post-conflict contexts offers greater peacebuilding potential than a narrowly technical programme to get drinking water and sanitation working again.

In the case of the 1999 East Timor crisis, one hypothesis might be that the interactions between local and international groups, as a result of international actors collaborating and consulting with local actors on water service provision projects, would lead to norm diffusion. Furthermore—because women are the main users of water services in East Timor, and because of their involvement

in both the peace process and community water management systems—such efforts might have been expected to lead to the diffusion of progressive international norms related to gender equality (Olsson, 2009). However, the empirics in the case study show that the cascading impacts of norm diffusion were unsuccessful because these efforts were not complemented by effective educational follow-up (Krampe & Gignoux, 2018).

Gender-related issues, concerns and goals gained increased importance within the UN peacebuilding mission. The UN Transitional Administration in East Timor (UNTAET) was the first UN mission to have a dedicated Gender Affairs Unit (Ospina, 2006). UNTAET officials were initially reluctant to create this unit, but it was ultimately established due to pressure both from women's groups in East Timor and from various UN bodies (Olsson, 2009; Ospina, 2006). However, similar actions were largely absent in the water sector. The local NGOs tasked with promoting women's participation in water user committees argued that patriarchal cultural barriers were too challenging to get past (Bank, 2004). However, an evaluation team from the Asian Development Bank found that, "No effort seems to have been made [by national NGOs] to find alternative ways to involve women" (Asian Development Bank, 2004, p. 37). Examples from states such as India and Nepal demonstrate that meaningfully involving women and increasing their active participation is possible, and results in the transformation of traditional gender norms (Krampe, 2016; Swain & Wallentin, 2009). Nonetheless, transnational norms should not override local norms, which can also be important for post-conflict peacebuilding—as the example of East Timor also shows. Reviving the practice of *tara bandu*, which serves to regulate individual relationships with the environment and with the community more broadly, both increased "community cohesion" and settled natural resource-related disagreements (Ide, Bruch, et al., 2021; Ide, Palmer, et al., 2021). In this way, a local environmental peacebuilding process was used to resolve both environmental and social issues while demonstrating a degree of hybridization between transnational norms and local norms and practices.

In East Timor, the lack of inclusion of women on local water user committees shows why the diffusion of norms is dependent on international actors adapting—to some degree—to socio-cultural realities. The insufficient training of national NGOs tasked with implementing reforms and facilitating the inclusion of women produced confused outcomes. This called into question the sustainability of the water systems provided through UNTAET and other international actors. In several cases, the lack of women's involvement in the planning and implementation of water systems resulted in maladaptation of these systems to the needs of local water systems users, who are first and foremost women (Australian Red Cross n.d.). Since women are the main actors in collecting drinking water, they have a higher interest than other groups in having functioning water systems. Where women's participation was high, the Asian Development Bank notes that: "water is more likely to be continually available within a shorter distance from homes" (Asian Development Bank, 2004, p. 45).

Environmental peacebuilding presents an opportunity to consider and address gender issues beyond the sexual violence experienced during conflict. Ide, Bruch, et al. (2021) and Ide, Palmer, et al. (2021) argue explicitly that gender must receive more attention from environmental peacebuilding research. One approach is to consider women's relationships to the environment (Yoshida & Céspedes-Báez, 2021). In Colombia, for example, the Special Jurisdiction for Peace (JEP), a judicial body created by the peace agreement to "try political offences and grave human rights and humanitarian law violations", explicitly recognizes women's relationships to the environment (Yoshida & Céspedes-Báez, 2021, p. 32). The JEP acknowledges that conflict made victims of the Awa people and territory, "given the grave, systematic, disproportion-

ate, differential and direct impact on their identity and dignity" (Yoshida & Céspedes-Báez, 2021, p. 32). As part of its judgement, the court has stressed that the conflict more greatly affected indigenous women and girls, as they are "carriers and custodians of ancestral knowledge and have a leading cultural role in the harmony and union between the natural environment and the human world" (Yoshida & Céspedes-Báez, 2021, p. 33). The JEP's recognition of women's relationships with the environment offers an example of how gender issues and their implications can be integrated into environmental peacebuilding and post-conflict peacebuilding processes more broadly—offering opportunities to advance both practice and scholarly research in environmental peacebuilding.

It is critical for water user committees to involve women and to pay greater attention to norms and the discourses that carry them, as this will lead to sustainable water provision as well as more impactful peacebuilding work in local communities. The objective of involving women in East Timor's water sector failed due to time and resource constraints, as well as the failure of international actors to adapt sufficiently to the socio-cultural context. It is critical to build the capacity of local actors, particularly women, while also training local NGOs on gender issues and how to address them. McLeod (2018) demonstrates the need to distinguish between theory, research and practice. Incorporating gender into post-conflict reconstruction involves a diverse set of goals and roles, from women-focused programmes and activities to goals related to gender transformation. Ide (2020) and some of the above examples illustrate that done badly, environmental peacebuilding interventions risk worsening the marginalization of women and furthering discrimination.

4.3. The service provision–revenue extraction equilibrium

Fragile and conflict-affected states alike must be able to provide security and public services, among other things, in order to maintain stability and growth (Brinkerhoff, Wetterberg, & Dunn, 2012). In so doing, states generate legitimacy for themselves, which is "widely acknowledged as an essential contributor to restoring peace, order and prosperity" (Brinkerhoff et al., 2012, p. 274). The ability of state authorities to provide services—such as the management of energy and water resources—addresses the fundamental needs of communities. Lipset asserts that service provision "maintains the belief that existing political institutions are the most appropriate or proper ones for the society" (Lipset, 1959, p. 86). Thus, in return for its service provision, the state anticipates increased support from local communities. In essence, if a state balances the amount of revenue it extracts from its community with successful service provision (Holsti, 1996), then delivering public services can help mobilize people behind the state. At the actor level, the failure to mobilize a society behind the state can result in a challenge to political leadership. At the structural level, it can threaten the state if the state fails to collect taxes or recruit soldiers (Migdal, 1988).

Service provision through the state is one way of achieving this mobilization. It is this reciprocal dependency, which is also known as the social contract between the state and society, that is crucial to maintaining a peaceful political system, or, in other words, a strong state. Indeed, in Yugoslavia, the provision of infrastructure, along with an increase in literacy and urbanization, was a critical policy of the initial post-war socialist state-building project (Sekulic et al., 1994). Infrastructure development was also an important policy across sub-Saharan Africa throughout the 1960s and 1970s (Chazan et al., 1992), and remains so—at least nominally—today in new states such as South Sudan (Rolandsen, 2015).

In establishing and implementing a social contract, the state builds and maintains legitimacy for itself, provided that the social contract is all-encompassing with regard to the various groups that constitute the state (Bouillon, 2012). Often, however, the social contract is imposed from above as part of a flawed liberal peacebuilding agenda that espouses and relies on implementing principles such as free elections and neoliberal market economics (Newman, 2011). Importantly, such principles may not be suitable for fragile and conflict-affected states, especially as implementing a free market tends to emphasize reduced public expenditure and to encourage privatization, which have the potential to undermine public service delivery where it is "most needed" (Newman, 2011, p. 1744). Such priorities in unstable states can exacerbate inequality and produce further grievances, both of which will compromise peacebuilding and state-building processes (Newman, 2011).

A human security approach to peacebuilding addresses the above-mentioned weaknesses of the liberal peacebuilding paradigm (Newman, 2011). This approach emphasizes that policymaking should focus on improving human security by reducing poverty, generating employment and providing public services. As a result, citizens are assured that their daily needs will be met and given an interest in the society in which they live, which makes them less likely to engage in sectarianism and more likely to accept reconciliation (Newman, 2011). For example, Abrahams (2020)--who explores development programming in Uganda as it attempts to draft and formalize resource sharing agreements, reduce the risk of conflict and address the relationships between conflict, climate change and resource management--emphasizes that factors other than climate change may be more significant in driving conflict.

Finally, the legitimacy of a state is not just tied to its ability to *provide* public services. A state's legitimacy is also a function of its ability to *deliver those services equitably and fairly* (Brinkerhoff et al., 2012), and this can be especially important in rural areas that have historically been disconnected from the central government (Brinkerhoff et al., 2012; de Walle & Scott, 2009).

Several scholars have pointed out that both researchers and environmental peacebuilding practitioners can adopt an overly technical perspective on resolving natural resource management problems, which depoliticizes the underlying issues that may have led to the problem in the first place (Aggestam, 2015; Aggestam & Sundell-Eklund, 2013). Solutions to natural resource problems in the field of environmental peacebuilding tend to overlook the power dynamics and socio-economic factors that may have produced the problem (Krampe & Swain, forthcoming; Ide, 2020). An equitable service provision–revenue extraction mechanism acknowledges that the process of service delivery is political. Providing services equitably explicitly addresses the "underlying drivers of grievances and human insecurity" (Ide, p. 3, 2020; Krampe, 2016), reduces the likelihood of discrimination, which can be an effect of implemented projects (Ide, 2020), and increases the legitimacy of the state and trust in government. This, in turn, reduces the likelihood of a descent into conflict, which can be a by-product of depoliticization (Ide, 2020).

State capacity is essential to providing public services. Building the capacity of the state across scale from the local to the national is usually a necessity in post-conflict contexts. When citizens perceive that non-state institutions such as local or international NGOs "are more committed to and/or successful in providing valued public goods than state institutions", this undermines the legitimacy of the state (Ide, 2020, p. 5). Furthermore, the absence of state capacity leaves people without essential services and public goods, creating additional opportunities for non-state actors—often those party to ongoing violent conflicts—to step in and provide services for groups who need them. As a result, such organizations build legitimacy for themselves, competing with those that seek to build and legitimize public sector institutions (OECD, 2010).

The research on public sector capacity building demonstrates that establishing a set of reasonably well-functioning state institutions takes much more than a few technocratic training sessions or purchasing programmes (Grindle, 1996; Sagar, 2000; VanDeveer & Dabelko, 2001; VanDeveer & Sagar, 2005). Effective state capacity-building takes an iterative commitment over time that includes small and large institutional changes, rather than the more common narrow focus on the skills and equipment of individuals in public sector organizations. The multiple dimensions of capacity include the abilities to gather and assess information, include multiple stakeholders, jointly make decisions, incorporate changing norms and expectations, and build institutions that can learn and adapt over time. In other words, over time, building and reshaping public sector capacity offers overlapping opportunities to both improve service provision and delivery, and embed new or newly prioritized norms into public policy processes and outcomes.

Thus, we anticipate that successful public service delivery by state actors should have a positive effect on the relationship between society and the state, and consequently on peace. Brinkerhoff has called this mechanism "administrative-economic governance", which he defines as "effective provision of basic services and economic opportunity through rules-driven and transparent policy-making, regulation, fiscal arrangements, partnerships, and civil service systems" (Brinkerhoff, 2007, p. 7). Post-conflict states are characterized by a lack of effective administrative-economic governance. However, Brinkerhoff argues that it is essential to establish effective administrative-economic governance because: "Service delivery and economic development effectiveness relate to legitimacy in that citizens tend to withdraw support from governments that cannot or will not provide basic services, limit corrupt practices, and generate some level of economic opportunity" (Brinkerhoff, 2007, p. 6).

Consequently, the theory anticipates that the state actors' equitable provision of services to communities, in the form of natural resource governance, will in turn lead to a strengthening of the legitimacy of the post-conflict state. Service provision can be one way, but is certainly not the only way, for state actors to gain legitimacy and consolidate the post-conflict political system (Stel & Ndayiragije, 2014). The ramifications of this relationship are observable in citizens' expressions of trust and confidence in governmental institutions and their performance, as well as their interest in politics and their political participation.

One example of the role of public service provision in generating legitimacy for the state is Iraq. Brinkerhoff et al. demonstrate how the provision of drinking water services in Iraq increased citizens' trust in government, which in turn improved the legitimacy of the state, provided that the distribution of services was equitable (Brinkerhoff et al., 2012). They add that the Day of Rage protests, which took place on 25 February 2011, confirm the relationship between service provision and state legitimacy, as the protestors did not trust the government to address their concerns about poor public services, corruption and unemployment (Brinkerhoff et al., 2012).

Despite finding that improving public service provision can increase a state's legitimacy, Brinkerhoff et al. note that the relationship between better service provision and legitimacy is not linear, since a number of other factors can interfere to further increase or decrease state legitimacy (Brinkerhoff et al., 2012, p. 289). For example, research from Nepal shows that community-level service provision can yield significant positive socio-economic effects for rural communities and facilitate the establishment of local informal governance structures that affect the peace process. In particular, however, the political effects are varied, especially with regard to the legitimacy of the Nepali state, as local

institutions play an important role in facilitating resource management and peace processes. This emphasizes the point that the relationship between public service provision and legitimacy is not necessarily linear (Krampe, 2016), and that delegitimization of the state may also occur (Ide, 2020).

5. Conclusions

Recent innovative work makes clear that the environment and natural resources have never been divorced from violent conflict, or state formation and operation—or in fact from local or global politics (Death, 2016; Lee, 2020; O'Lear, 2020). Although not explicitly mentioned above, O'Lear's work on geopolitics, in particular, challenges us to examine the discourses framing what is or is not environmental- or natural resource-related—and how these are conceptualized in relation to power and conflict. Peacebuilding research and practice would do well to incorporate insights from these broader areas of social science.

This paper explores the wider benefits of natural resource management in post-conflict states, and delineates and develops three conceptually driven, causal mechanisms that could help explain how natural resource management can reduce political fragility in violent, conflict-affected countries, and thus help to build peace. We see its findings as consistent with and supported by the recent assessment in Johnson et al. (2021) of research related to natural resource management and intrastate environmental peacebuilding. Our three mechanisms—the contact hypothesis, the diffusion of transnational norms, and state service provision—undoubtedly have important interactions with one another. However, they are designed and framed as conceptually and theoretically distinct to provide opportunities for empirical research. In addition, they allow policy practitioners to conceptualize development interventions more broadly—not least in the context of delivering on the UN Sustainable Development Goals.

While the paper offers timely additions to current research on environmental peacebuilding, more research is needed to comprehend these mechanisms more thoroughly and to understand their relationships to the types of risks identified by Ide (2020). Comprehensive comparative studies that probe one or more of these mechanisms are currently lacking and urgently needed to contribute to the increasingly complex and pressing post-conflict landscape in times of climate change. Some of this research could be retrospective, looking back at post-conflict peacebuilding initiatives over the past 20 years to ask what evidence there is that the pathways or mechanisms outlined here are manifest in particular cases, and whether they contribute to the success or failure of peacebuilding. More research could also be carried out if contemporary or future peacebuilding initiatives seek to explicitly implement or achieve goals related to one or more of the articulated pathways.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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