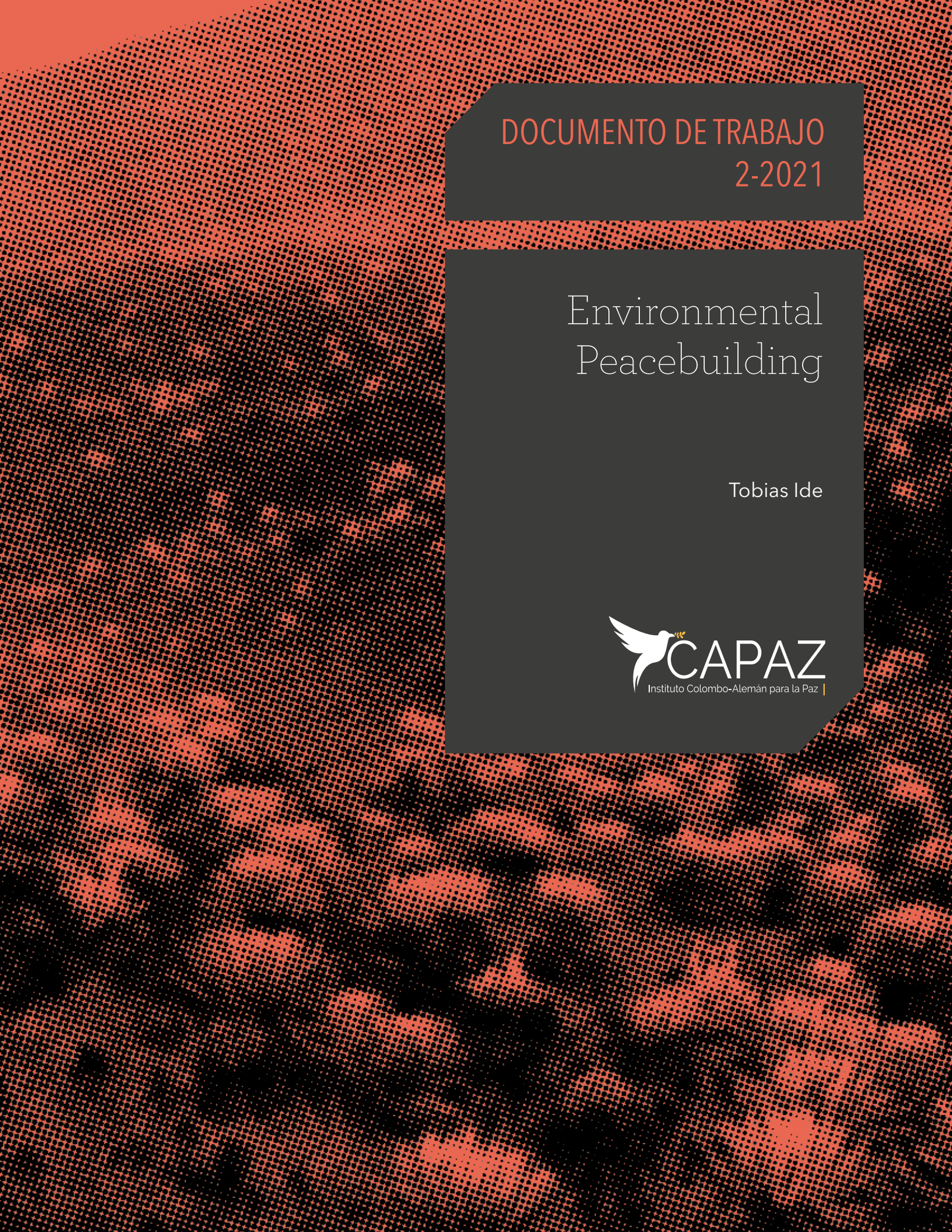

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Environmental Peacebuilding

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Abstract:
Environmental peacebuilding includes a broad range of practices and approaches connecting environmental management and environmental cooperation to conflict prevention and resolution, as well as to more positive forms of peace. Research on environmental peacebuilding provides an important corrective to the conflict focus of most environmental security research. Further, it aims to generate knowledge on how to increase both peace and sustainability at the same time. This working paper provides an overview of the burgeoning literature on environmental peacebuilding. To do so, it distinguishes between four dimensions of peace (absence of violent conflict, symbolic rapprochement, substantial integration, and capabilities) and four pathways of environmental peacebuilding (avoiding conflicts related to natural resources, building understanding and trust, increasing interdependence, and establishing institutions). After providing a brief synthesis of environmental security debates and introducing the conceptual framework, the working paper surveys existing empirical research on environmental peacebuilding along the four dimensions of peace introduced before. It finds substantive evidence that cooperative environmental management can contribute to all dimensions of peace except for substantial integration. However, such an effect is dependent on scope conditions like local ownership and the absence of recent violence, and there are abundant examples where environmental peacebuilding had no or even adverse impacts on peace and sustainability. Future research needs to specify the pathways connecting environmental management to peace, broaden the geographical scope of the research field, and take gender considerations more seriously.

Content

Introduction **p.5**

The Genesis of Environment, Peace and Conflict Research **p.7**

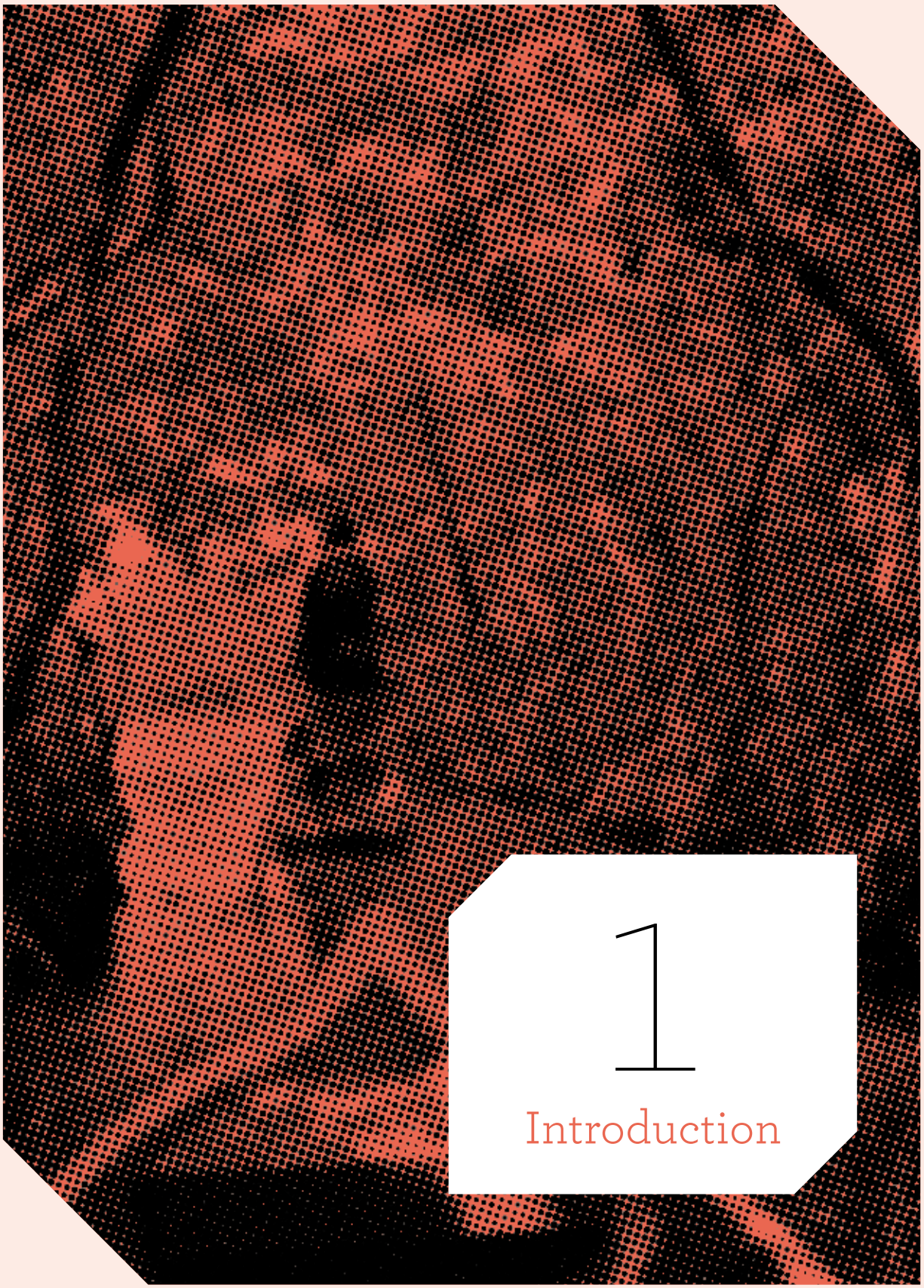
Linking the Environment to Peace **p.10**

What Do We Know About Environmental Peacebuilding? **p.13**

- Peace as the absence of violent conflict p.14
- Peace as symbolic rapprochement p.15
- Peace as substantial integration p.16
- Peace as capabilities p.16
- Cooperative environmental management, but no peace? p.17
- The negative effects of environmental peacebuilding p.18

Conclusion **p.20**

References **p.23**



1

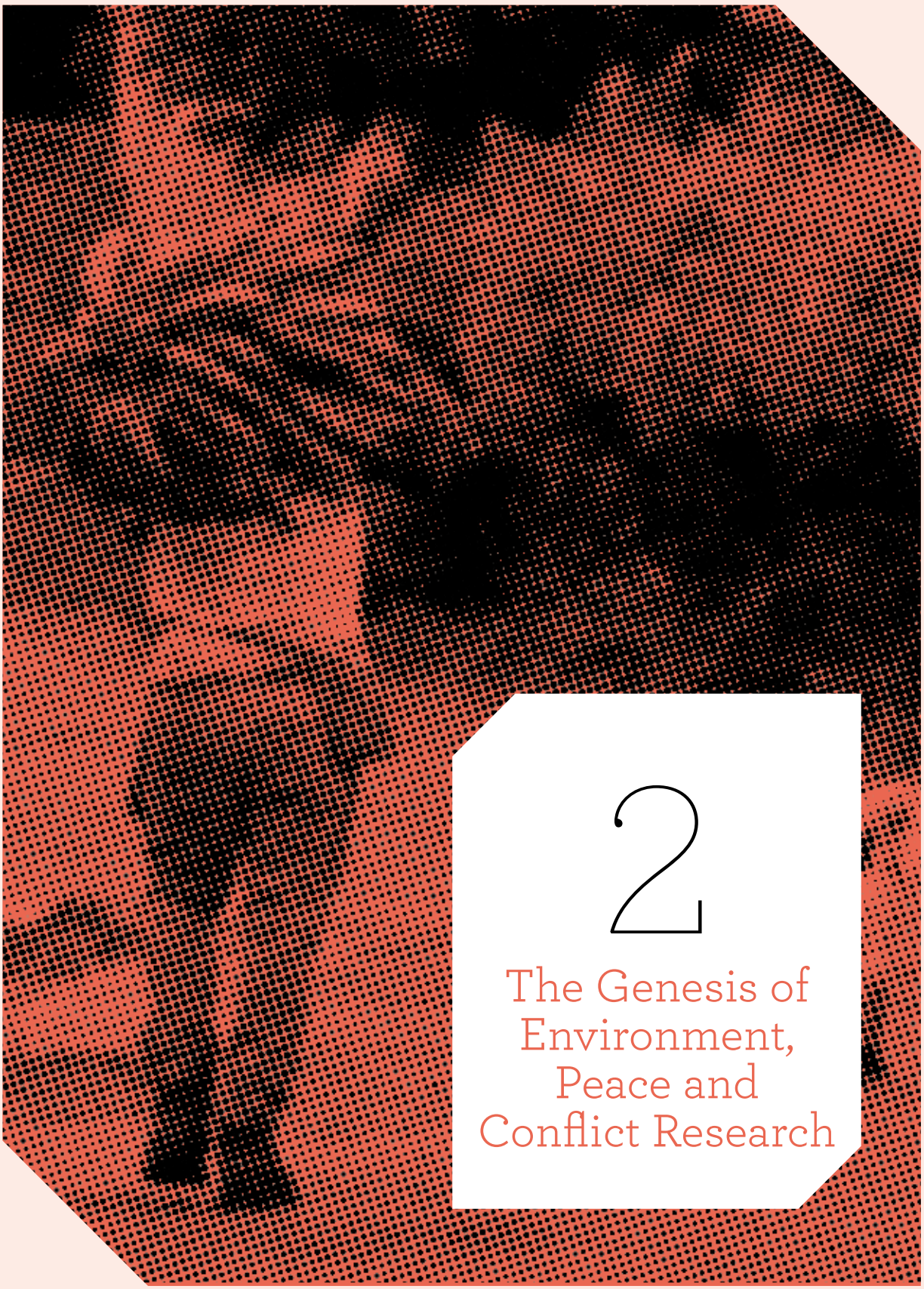
Introduction

Attention to the security implications of environmental change and environmental governance has grown during the last two decades. On one end of the spectrum are concerns about resource scarcity, disasters and climate change increasing violent conflict risks, as voiced by German Foreign Minister Heiko Maas during a 2019 debate in the UN Security Council: "As Lake Chad shrinks, the livelihoods of entire population groups are disappearing – the perfect breeding ground for extremism and terrorism" (Auswärtiges Amt 2019). In line with this, a recent expert assessment finds "that climate has affected organized armed conflict within countries" (Mach et al. 2019: 193).

On the other end of the spectrum, an alternative view has emerged that highlights the opportunities which cooperation in the face of environmental stress provides for conflict resolution and peacebuilding. Acting Resident Representative for the United Nations Development Programme (UNDP) in Colombia, Arnaud Peral, for example, emphasises that "the environment is essential for achieving post-conflict reconciliation and stabilization" (UNDP 2016). Likewise, a summary of the recent literature on natural resource management concludes that such "initiatives show consistent indirect and direct linkages to all dimensions of peace" (Johnson et al. 2020: 1).

This working paper deals with the latter line of argumentation. It aims to survey the literature on the multiple linkages between environmental change, environmental politics, cooperation, and peace. This work is summarised under the term environmental peacebuilding here. "Environmental peacebuilding comprises the multiple approaches and pathways by which the management of environmental issues are integrated in and can support conflict prevention, mitigation, resolution and recovery" (Ide et al. 2021a: 2). By doing so, environmental peacebuilding provides a nuanced and constructive counter-pole to unidirectional narratives about environment-conflict links (Verhoeven 2014). However, it also includes a critical perspective on the environment, power and inequality growing from an engagement with political ecology approaches (Le Billon and Duffy 2018).

This working paper proceeds in six steps. After this introduction, it briefly engages with the history of environmental security research in order to contextualise the field of environmental peacebuilding and its development (Section 2). Following this, section 3 discusses key theoretical claims and debates of environmental peacebuilding, before section 4 provides an overview about the state of research. Finally, the working paper sums up key insights and gaps to be addressed by further research on environmental peacebuilding (section 5).



2

The Genesis of Environment, Peace and Conflict Research

While individual scholars discussed interlinkages between environmental and security issues earlier (Sprout and Sprout 1957; Westing 1976), the topic gained prominence with a general growth of attention to non-traditional security issues after the end of the Cold War. Echoing then Egypt Foreign Minister Boutros Boutros-Ghali's statement that "the next war in the Middle East will be fought over water, not politics", several scholars discussed the likelihood of water wars in the early 1990s (Bencala and Dabelko 2008). However, in a comprehensive assessment of international water conflict and cooperation, Aaron Wolf et al. (2003) showed that the last water war took place 4,500 years ago, and that for the period 1948-2000, cooperation events (1,228) outnumber even mild water conflicts (507) by far.

Throughout the 1990s, the Toronto Group led by Thomas Homer-Dixon (1999) and the Zurich Group led by Günther Bächler (1998) studied environment-conflict links within states. They found that natural resource exploitation (Bächler) and renewable resource scarcity (Homer-Dixon) can contribute to low-intensity violent conflict, but only under specific circumstances. While this early research laid the foundation for many of the subsequent debates (Scartozzi 2020), it was also subject to heavy criticism. Nils Petter Gleditsch (1998), for instance, identified several methodical weaknesses in the works of Bächler and Homer-Dixon, including over-complex (and hence untestable) causal models and sampling on the dependent variable (as only conflict cases were studied). Political ecology approaches argued that the environmental conflict literature of the time was overly deterministic, while failing to account for how power and wealth inequalities (including those linked to colonialism and neoliberal globalisation) shape resource scarcity in the first place (Peluso and Watts 2001).

During the early 2000s, several researchers started to challenge the literature's predominant focus on conflict, resonating with earlier claims about the predominance of water cooperation (Wolf et al. 2003) and about the existence of a sampling bias (Gleditsch 1998). Pathbreaking in this regard was an edited volume on *Environmental Peacemaking* by Ken Conca and Geoffrey D. Dabelko (2002). They argued that cooperation on shared environmental problems can facilitate trust building and transnational linkages between states, hence supporting peacemaking processes. These findings were further confirmed by Alexander Carius' (2006) analyses of international environmental cooperation, Saleem Ali's (2007) volume on transboundary peace parks, and Ilan Kelman's (2012) work on disaster diplomacy.

However, by the early 2000s, the emerging approach of environmental peacemaking was somewhat sidelined along with debates about renewable resource scarcity and conflict. Rather, the focus of mainstream environmental security research shifted to conflict resources, that is, renewable resources (e.g., timber, coca) and especially non-renewable resources (e.g., oil, diamonds, tantalum) used by rebel groups to finance civil wars (Le Billon 2013; Ross 2004). Particularly prominent in this context was the greed vs. grievance debate, during which Paul Collier and Anke Hoeffler (2004) argued that primary commodity exports significantly increase civil war risks. This is the case, they argued, because revenues from such commodities provide incentives for greedy rebels to capture state power (for a critical discussion of this approach, see Ballentine and Sherman 2003).

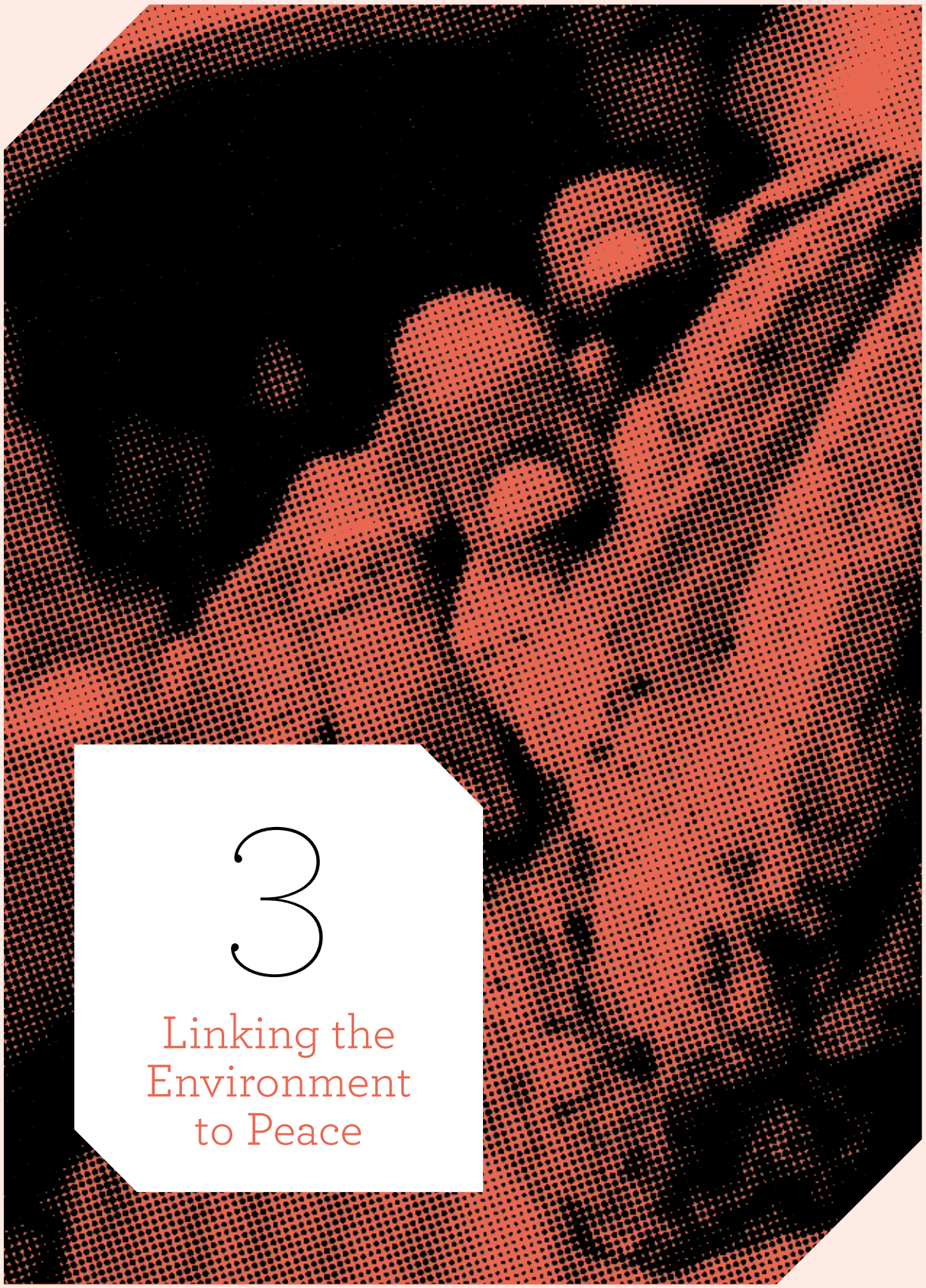
From 2007 onwards, interest in the impact of climate change on conflict rose to prominence. Scholars – but also various NGOs and decision makers – voiced concerns that a changing climate would lead to resource scarcity, disasters, economic turbulences and migration, which in turn facilitate fragility and violence (Scheffran et al. 2012). Following in the footsteps of earlier work on environmental conflicts, the debate became at times heated. More sceptical scholars criticised proponents of a climate-conflict link for determinist assumptions, flawed methods, and a lack of attention to broader structures of inequality and power (Raleigh et al. 2014; Selby et al. 2017). Recent research provides support for a small and conditional, yet significant impact of climate change on intrastate armed conflict risks (Ide et al. 2020; von Uexkull et al. 2020).

In the late 2000s, interest in the nexus between environment and peace gained renewed traction. The two broad streams of research emerged, which have been connected by their focus on peaceful outcomes and their strong links to earlier work on environmental peacemaking (Krampe 2017).

One research stream studied the role of natural resource management in the context of peacebuilding processes in post-conflict (usually post-civil war) settings. This body of research was promoted by the United Nations Environment Programme (UNEP) and established the label environmental peacebuilding for the broad research field (Matthew et al. 2009). It drew heavily on insights from earlier work on conflict resources but studied how such resources could be managed in an inclusive and transparent way to avoid conflict over, or financed by, these valuable commodities. At the same time, this work also linked to insights from climate-conflict debates (Barnett and Adger 2007) by identifying improved natural resource management as a foundation for better livelihoods and, in turn, political stability (Bruch et al. 2016; Conca and Wallace 2009).

The second stream connects to early environmental peacemaking research by studying how joint environment problems provide incentives for environmental cooperation, which can then catalyse interdependence and trust-building between parties in conflict. Inspiring for many scholars in this context has been the pioneering work of the NGO EcoPeace in using transboundary water resources to establish good relations between Israeli, Jordanian and Palestinian communities (Djernaes et al. 2015; Ide and Tubi 2020). So far, this work has mostly focused on the international level and relations between states (Ide 2019), but there is growing attention to peacebuilding within states as well (Johnson et al. 2020). This research stream explicitly challenges the one-sided focus of climate-conflict (and earlier environment-conflict) work on violent conflict as the independent variable (Barnett 2019).

In the next two sections, this working paper portrays the evolving literature on environmental peacebuilding in greater detail. To do so, it first outlines theoretical considerations around environmental peacebuilding and pathways connecting the environment to peace, before assessing the findings of empirical research.



3

Linking the Environment to Peace

Environmental cooperation has been linked to various forms of peace. In their classical work on the topic, Conca and Dabelko (2002: 220) understand peace as a "continuum ranging from the absence of violent conflict to the unimaginability of violent conflict". This definition refers to more or less robust variations of a negative peace, that is, the absence of physical violence. Other scholars, by contrast, conceive environmental cooperation as a potential facilitator of positive peace, which includes the absence of structural violence (Galtung 1969) and broad forms of justice and sustainability (Kyrou 2007).

In a recent review of the literature, Tobias Ide (2019) draws on these insights to order three (partially overlapping) forms of peace along a continuum. The first form of peace is the absence of violent conflict, defined as at least one social group using physical violence in an organised way against another social group. Symbolic rapprochement, by contrast, refers to processes of building trust, forging positive narratives about other groups, and constructing a shared identity. This form is closest to Conca and Dabelko's unimaginability of violent conflict. The third form of peace, substantial integration, goes even further as it requires the establishment of joint institutions or trans-societal linkages. These, in turn, make not only physical violence inconceivable, but they also set the foundation for addressing broader forms of injustices (i.e., structural violence).

McKenzie Johnson et al. (2020) expand this typology in two important ways. They argue that the different forms of peace should not be conceived as a continuum, but rather as different dimensions (or aspects) of peace because they not necessarily build upon each other or occur in a fixed order. As the example of water cooperation along the Jordan River shows, symbolic rapprochement might well precede the absence of violent conflict (Abukhater 2013; Ide and Tubi 2020). Furthermore, Johnson et al. add a fourth dimension of peace: Capabilities refer to individual freedoms and opportunities for people to sustain livelihoods, exercise social and political rights, and adapt to environmental changes. This dimension is closely connected to positive peace, but capabilities also mitigate physical violence by reducing grievances and providing fewer opportunities for violent conflict. People with secure livelihoods and the capability to adapt to environmental stress, for instance, face higher opportunity costs for joining armed groups (Barnett and Adger 2007).

There are four mechanisms through which the management of environmental issues can contribute to (various dimensions of) peace (Dresse et al. 2019; Ide 2019; Johnson et al. 2020; Lejano 2006): avoiding conflicts related to natural resources, building understanding and trust, increasing interdependence, and establishing institutions.

Avoiding conflicts related to natural resources: Even though claims about environmental conflicts are sometimes exaggerated (Selby and Hoffmann 2014), disputes around resources are widespread at both the local and the international level. Examples include tensions about land grabbing in Colombia (Feola et al. 2019), scarce pastures in Kenya (Schilling et al. 2012), water in the Euphrates-Tigris River Basin (Kibaroglu and Sayan 2021), and recently, offshore gas in the eastern Mediterranean (Wintour 2020). If these resources are managed in a cooperative, inclusive and sustainable way, tensions over them are eased, hence diminishing the prospects of further conflict.

Well-managed land, water and forest resources also strengthen local livelihoods, hence

addressing grievances and raising opportunity costs for armed conflicts (Taher et al. 2012; Zawahri 2011). In a related manner, income from oil, gas and various metals could be used to finance social spending, education, and environmental clean ups, rather than armed groups or corrupt patronage systems (Poteete 2009). Ecotourism could have similar effects by generating revenues for local communities and governments (Maekawa et al. 2013)

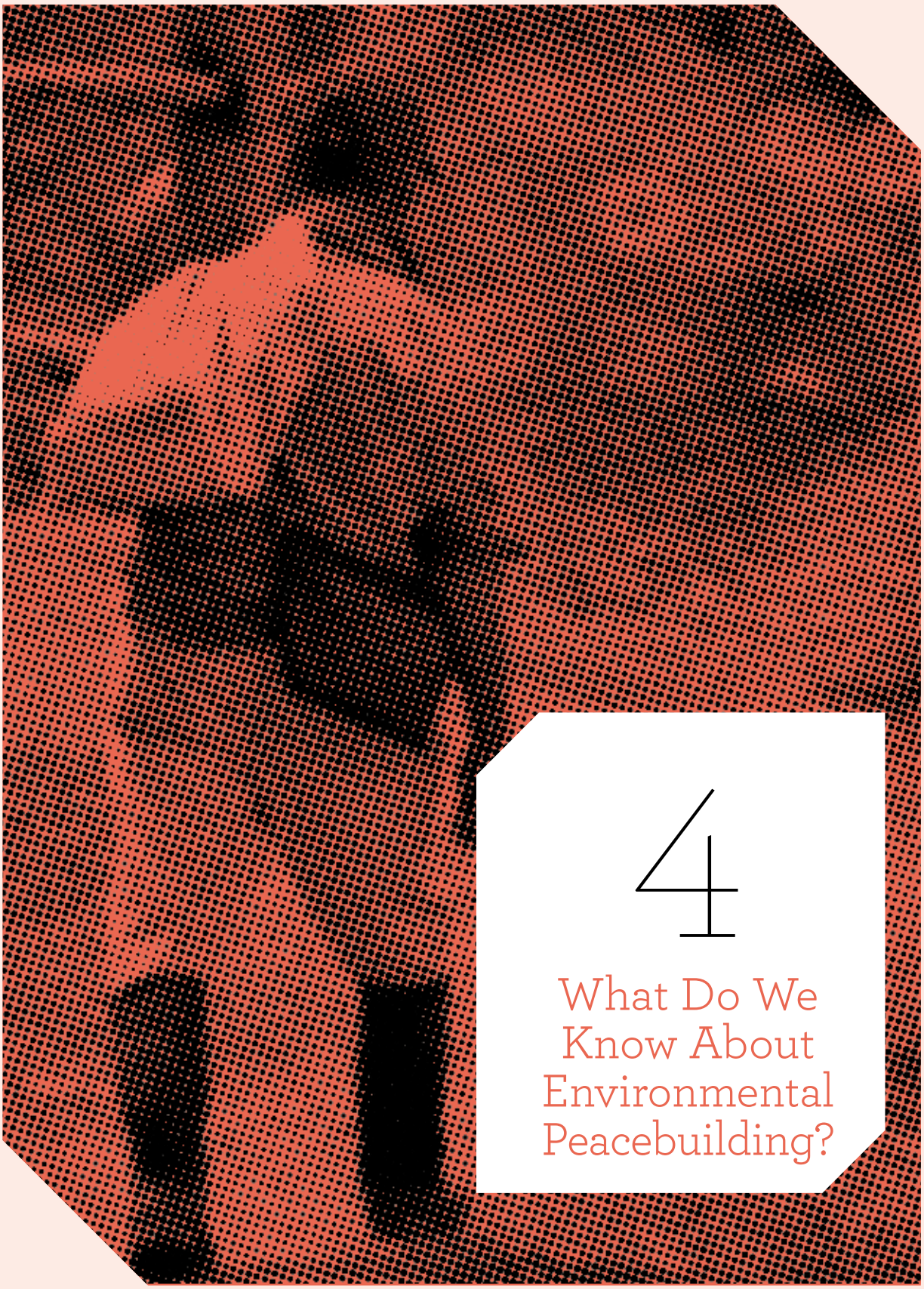
Building understanding and trust: This mechanism draws on early observations by Conca (2001) that environmental issues have considerable potential to stimulate cooperation between parties in conflict. They cross national borders, can be framed as shared threats, allow for positive-sum interactions, attract support by international actors and civil society groups, and are less contentious than economic or military issues (see also Ali 2011). The resulting environmental cooperation can, in turn, facilitate trust building between the persons involved, demonstrate the benefits of cooperation across group or state boundaries to a wider audience, and increase solidarity among conflict parties. This is well in line with disaster sociology, which argues that the joint suffering caused by disasters leads communities to temporarily abandon existing cleavages and cooperate in the face of shared threats (Quarantelli and Dynes 1976).

Increasing interdependence: This mechanism also takes cooperation in the face of shared environmental challenges as a starting point. Drawing from liberal and functionalist approaches in International Relations (Oneal and Russett 1999; Tranholm-Mikkelsen 1991), it argues that once environmental cooperation and independence are established between communities or states, they are less likely to wage destructive conflict on each other. This is the case because such conflicts would hurt both sides. Furthermore, once initiated, environmental cooperation might spill over via the networks established or due to economic incentives. As Claudia W. Sadoff and David W. Grey (2002: 393) put it: "International rivers can be catalytic agents, as cooperation that yields benefits from the river and reduces costs because of the river can pave the way to much greater cooperation", for instance in the domains of fisheries, energy generation and transport.

Such an increase in interdependence can also take place in the realm of symbolic politics, hence linking this mechanism to the (second) mechanism of building cooperation and trust. Environmental cooperation, particularly when taking place between parties in conflict, can demonstrate to wider audiences that cooperation is possible and, due to its positive effects, desirable. Civil society networks might also evolve around environmental cooperation and deepen societal links. Ultimately, environmental cooperation might even affect wider perceptions of the respective other and the associated norms of adequate behaviour (Conca and Dabelko 2002; Finnemore 1996).

Establishing institutions: Finally, states or groups often establish joint institutions to deal with environmental issues. These institutions can be informal, such as community meetings or ritual, or formal, such as river basin organisations or conservation agencies. Once established, such institutions can serve as channels of communication and conflict resolution between the involved actors. They also frequently promote technical cooperation and knowledge exchange, hence addressing the environmental problems underlying certain conflicts (Dresse et al. 2019). In addition, such institutions – if adequately designed – facilitate the other three mechanisms behind environmental peacebuilding: They regulate transparent and inclusive resource governance, provide forums for trust building, and deepen interdependence between the respective groups or states (Bogale and Korf 2007; Bruch et al. 2016).

This discussion already indicates that the four mechanisms often interact or overlap in practice. Distinguishing them is still important for researchers to disentangle the causal mechanisms behind environmental peacebuilding and to provide tailored advice to decision makers.



4

What Do We Know About Environmental Peacebuilding?

Summarising empirical research on environmental peacebuilding is not easy for several reasons. The field is rather young, with the majority of studies having been published in the last ten years and important knowledge gaps remaining (see section 5). Several insights from neighbouring fields – such as environmental conflict or resource governance research – provide important insights for environmental peacebuilding debates, but are often not explicitly connected to them. And the results of single case studies – currently the dominant method in the field – are not always easily comparable, especially if they consider several dimensions of peace simultaneously and do not specify the relevant mechanisms. There is, however, considerable evidence that the management of environmental issues can contribute to peace, even though it is rarely the most important factor in peacebuilding processes.

Peace as the absence of violent conflict

While still the minority in the field, several quantitative analyses link environmental cooperation to the absence of violence. Karina Barquet et al. (2014), for instance, study 328 country-dyads between 1949 and 2001 and find that dyads which share a transboundary conservation area are less likely to engage in militarised interstate disputes. This effect is relatively weak, however, and confined to Africa, the Middle East and Asia. Likewise, Ide (2018) uses quantitative data to show that while cooperative environmental agreements between states in intense conflicts are rare, they can catalyse existing peacemaking processes (but not stimulate new ones). Such a link is dependent, however, on high levels of environmental attention and a track record of low-level environmental cooperation. According to Sara McLaughlin Mitchell and Neda A. Zawahri (2015), well-designed river treaties lead to a statistically significant decline of militarised disputes over these rivers.

Turning from the international to the domestic level, Eric Keels and T. David Mason (2019) report statistically significant evidence that the inclusion of land reform provisions into peace agreements reduces the likelihood of civil war recurrence. The acceptance of more transparent and equal resource governance by the government, they argue, "reinforces rebels' perception of the credibility of the government's commitment to the peace process" (Keels and Mason 2019: 46). Based on extensive data collection in Liberia, Christopher Blattman and Jeannie Annan (2016) find robust evidence that the provision of agricultural training and inputs improved the livelihoods of former combatants. Therefore, these men were less likely to be recruited again by armed groups. Finally, according to Rune Slettebak (2012), countries recently affected by climate-related disasters have a reduced risk of armed conflict onset. The author hypothesises that a short-term increase in solidarity in the post-disaster period can explain this effect.

Case study evidence on a link between environmental management and the absence of violence is also available, although mostly limited to the avoidance of violent conflict over resources. Hermant R. Ohja et al. (2018), for instance, show how sustained dialogue and the establishment of (informal) institutions in Nepal prevent the escalation of local disputes over water and forest resources. In Yemen, an arid and agriculturally dependent country, violent water disputes became increasingly common in recent decades due to sinking groundwater tables and higher

demand for water in commercial agriculture. In this context, many local communities formed initiatives to manage water in a sustainable and equal manner (Lichtenthaler 2014; Taher et al. 2012). However, the massive infrastructure destruction and internal migration during the current civil war will complicate such efforts in the future (Sowers and Weinthal 2021).

While much research on climate change and conflict use pastoralist conflicts in East Africa as a case in point, there is no deterministic or one-sided impact of environmental stress in this context. In Kenya, for example, traditional local institutions like elders' meeting frequently initiate temporary patterns of cooperation in the form of resource sharing to cope with droughts (Adano et al. 2012). Further, Zawahri (2011) argues that coordination and negotiation in the Permanent Indus Commission helped India and Pakistan to address water-related tensions, even when the countries were at war with each other.

In sum, research finds that environmental management has a proper tracker record of facilitating peace as the absence of violence. Avoiding conflicts related to natural resources and establishing institutions are the causal mechanisms most often highlighted by the literature for international as well as for domestic and local settings. Most successful examples concern the avoidance of violent conflicts specifically related to natural resources. Only a minority of authors claim that environmental management can also reduce the risk of violence unrelated to environmental issues, and if so, this is usually a by-product of achieving other forms of peace like symbolic rapprochement (Ide 2018) or improved capabilities (Blattman and Annan 2016).

Peace as symbolic rapprochement

There is an abundance of studies demonstrating that environmental management contributes to improved relations and symbolic rapprochement between states or social groups beyond just preventing violent conflict. A recent statistical analysis indicates that a track record of water cooperation in the past ten years increases the likelihood of two non-rival states to improve their relations (Ide and Detges 2018). According to J. Todd Walters (2012), scientific and academic cooperation on Lake Titicaca helped to build trust between Bolivia and Peru. This cooperation also paved the way for further political, military and community cooperation around the lake, including the creation of a formal institution (the Binational Autonomous Authority of Lago de Titicaca). Similar forms of building trust and deepening cooperation could also be observed in the Euphrates-Tigris Basin in the 1990s and 2000s (prior to the Syrian civil war), which Syria and Turkey even agreeing to build a Friendship Dam (Kibaroglu and Sayan 2021).

Symbolic rapprochement even occurs in contexts characterised by intense hostilities. Mirza Sadaqat Huda (2021) analyses cross-border education and youth engagement activities between India and Pakistan as well as between India and Bangladesh. He finds that shared environmental concerns and the resulting activities are well-suited to challenge ethnonationalism and promote mutual understanding among the participants. An assessment of three environmental education initiatives designed to promote sustainability and peace between Israelis and Palestinians also finds that participants show more cooperative and peaceful attitudes towards the respective other. While such initiatives face considerable challenges due to the tense political situation and intra-societal resistance, they contribute to rapprochement through strengthening livelihoods, building trust, and cultivating independence (Ide and Tubi 2020). According to Adrian Martin et al. (2011), cooperation around the biodiversity-rich Virunga region since the 1990s helped to build trust and to establish institutions (like the Greater Virunga Transboundary Collaboration Secretariat) between the Democratic Republic of Congo, Rwanda and Uganda.

While most research on symbolic rapprochement followed the environmental peacemaking line of research and studied international contexts, similar findings exist for the intrastate level as well. The initiatives to avoid water conflict in Yemen discussed above, for example, also often involve cooperation between members of local communities with hostile relations, and hence support trust building in a conflict-prone landscape (Taher et al. 2012). In post-conflict Timor-Leste, the *tara bandu* ritual to manage land and forests also serves to re-establish mutual understanding in communities recently characterised by violence (Ide et al. 2021b). In the Colombian city of Bogota, communities were able to improve the urban environment, expand their social networks, and bring "together people who used to be in opposite camps" during the civil war by launching an urban agriculture program (Nail 2018: 53).

Not surprisingly, building trust and understanding during environmental cooperation activities is the main mechanism related to peace as symbolic rapprochement. This finding goes beyond the traditional contact hypothesis, which posits that personal contact between members from groups in conflict will reduce stereotypes, prejudices, and the readiness to use violence (Pettigrew et al. 2011). In the environmental peacebuilding cases discussed here, individuals, groups and states actively cooperate with each other based on perceptions of shared environmental threats. The establishment of institutions facilitates the resulting rapprochement, as does the widening or deepening of cooperation in the face of (a perceived) stronger interdependence.

Peace as substantial integration

There are a few studies showing that cooperative management of environmental issues leads to more substantial forms of integration, usually on a local level. During the 1957-1963 drought in southern Israel, several areas saw cooperation between Israeli farmers and Bedouin nomads, such as grazing cattle on harvested fields, which provided fodder for the nomads' cattle and fertilisation for the farmers' fields. In rare cases (usually involving very left Israeli communities), such environmental cooperation grew into more substantive collaboration, for instance when Israelis supported Bedouins in claiming their rights vis-à-vis the state (Tubi and Feitelson 2016). Similar reciprocal arrangements between farmers and herders during droughts are discussed by Ayalneh Bogale and Benedikt Korf (2007) in the context of Ethiopia. Based on interest-based, short-term cooperation, the respective groups deepened their ties with each other, including living together for longer periods of time and forging formal arrangements.

Overall, however, environmental management only rarely facilitates substantial integration, and if so, it is only a minor contributing factor (Swain 2016). There are also no documented cases of environmental peacebuilding supporting integration beyond the local level, that is, between civil war parties or states. Substantial integration is hence the peace dimension least impacted by environmental peacebuilding (Johnson et al. 2020).

Peace as capabilities

Transparent, sustainable and cooperative environmental management can strengthen the capabilities dimension of peace. Strong evidence for this claim comes from Colombia in the period after the 2016 peace agreement. P. Zúñiga-Upegui et al. (2019) use scenario predictions to illustrate how well-designed land management could reduce socio-economic inequalities and prevent ecosystem destruction in the biodiversity-rich department of Tolima. The resulting strengthening of sustainable livelihoods is particularly important in the context of Colombia's Land Restitution Programme that manages the return of displaced people to their lands, where they need both an income and ecosystem services that sustain the agricultural economy.

Other studies also address the issue of settling people displaced by the armed conflict (3.6 million between 1980 and 2010 alone) in post-conflict Colombia. Andres Suarez et al. (2018) argue that conservation agriculture preserving both ecosystems and livelihoods are a suitable and sustainable strategy in this context. They find that 83% of the surveyed conflict victims are willing to participate in such conservation agriculture schemes if financial incentives are provided, with another 11% looking for non-monetary incentives. Others suggest that a combination of land tenure formalisation, strengthening local institutions, and carbon payments to leave carbon-rich forests untouched are suitable strategies to generate capabilities and environmental benefits (Castro-Nunez et al. 2017). Based on a multi-stakeholder assessment for the Caquetá region, Hector Morales et al. (2021: 22) argue that environmental management can facilitate peace best if it promotes socio-economic inclusion. This "is related to producing positive changes in the incomes of vulnerable populations and creating a sustainable environment, thus reducing the community's risk from illegal economies".

Evidence from other world regions are broadly in line with these findings (Burt and Keiru 2011). According to Blattman and Annan (2016), ex-combatants in Liberia show great interest in participating in agricultural training and support programmes. Participants gained economically from these programmes and were less likely to join armed groups again. Cultivating the acacia gum tree in the western Sahel region provides opportunities for local communities to reverse environmental degradation and strengthen their livelihoods, hence avoiding maladaptation like

involuntary migration and resource conflicts (Kalilou 2021). And in Guatemala, the Buena Milpa project implemented by the International Maize and Wheat Improvement Center worked with local institutions to facilitate community-based resource management, enhance climate change adaptation, develop micro-credit schemes, establish a natural reserve, and build a micro seed bank. By doing so, the project strengthened food security, community cohesion, and resilience to environmental shocks such as droughts (Hellin et al. 2018).

Improving local livelihoods and economies as well as reducing vulnerabilities to environmental stress are the main pathways connecting environmental management to improved capabilities. For the sake of this report, these pathways are categorised as part of the "avoiding conflicts related to natural resources" mechanism. Overall, empirical support for an impact of environmental peacebuilding practices is strongest for the capabilities dimension. While most evidence for this is derived from post-civil war settings, examples related to international environmental cooperation exist as well. The Trifinio plan to conserve the ecosystems and watersheds in the border region between El Salvador, Guatemala and Honduras, for instance, enabled local communities to benefit from conservation schemes and cross-border integration (López 2004).

Cooperative environmental management, but no peace?

Despite the positive effect of environmental management and cooperation on various dimensions of peace that many studies find, environmental peacebuilding is no universal success. Ladislav Cabada and Sarka Waisova (2018) study environmental cooperation between China and Taiwan, the two Koreas, and Cambodia and Thailand. They find that collaboration on environmental issues occurred as a side-effect of a general improvement of mutual relations, but has no discernible effect on the wider interactions between the states. Likewise, Annie Young Song and Justin V. Hastings (2020) argue that environmental cooperation survived a rise in tensions between North Korea and South Korea, but yielded no significant peace gains. Studies on cross-boundary water cooperation between Israelis and Palestinians and on the divided island of Cyprus claim that symbolic rapprochement is confined to a small group of already pro-peace, environmentalist groups, with little prospect for spill-over (Akçalı and Antonsich 2009; Reynolds 2017). According to Bram Büscher and Michael Schoon (2009), disputes about revenue sharing, conservation standards, and boarder security issues undermined cooperation around peace parks in southern Africa (such as the Great Limpopo Transfrontier Park between South Africa, Mozambique and Zimbabwe).

Sceptical voices have emerged regarding environmental peacebuilding within states (and especially after civil wars) as well. In Sierra Leone, for example, efforts to improve the governance of local conflict resources have led to a formalisation that benefited large and international business actors, but did not improve the livelihoods of many locals. The latter lacked the resources to benefit from or to participate in such formalisation schemes (Ankenbrand et al. 2021; Johnson 2019). There are also criticisms of efforts to link water infrastructure reconstruction and peacebuilding in Timor-Leste, which suffered from a lack of donor coordination, a lack of engagement with local community structures, the short time horizons of many projects, and a bias towards urban areas (Krampe and Gignoux 2018). Further, in an analysis of post-conflict Kosovo, Florian Krampe (2016) found that integrated water management contributed little to peacebuilding. Reasons for this include a focus on technical issues rather than conflict resolution, the maintenance of separated water management structures (rather than integrated management to the benefit of the broader local community), and strong external ownership.

In the case of Colombia, the decades-long civil war between the Revolutionary Armed Forces of Colombia—People's Army (FARC) on one side and the government and right-wing militias on the other was heavily financed by illicit crops like coca (Angrist and Kugler 2008). Consequentially, the National Programme for the Substitution of Illicit Crops (PNIS) was conceived as an important cornerstone of the peacebuilding process after the signature of the peace agreement in late 2016. The idea behind PNIS was that peasants would voluntarily give up the cultivation of illicit crops and in exchange receive foods assistance, technical support, and financial help by the government. This, in turn, would not only undermine the coca economy, but also enable farmers to build more sustainable livelihoods, hence addressing the grievances and recruitment opportunities related to rural poverty that were one of the drivers of the

civil war. According to Irene Vélez-Torres and Diego Lugo-Vivas (2021), however, the achievements of PNIS on the ground are limited. Few peasants participate in the plan, and those who do receive very limited assistance. Large structural issues of Colombia's agricultural economy, including the dominance of large landholders and continuous incentives to cultivate coca, remain unaddressed.

Two recent reviews of the broad literature on environmental peacebuilding identify factors distinguishing cases of successful environmental peacebuilding from those where cooperative environmental management yielded little or no peace dividend. According to Ide (2019), external (financial) support and the absence of strong recent tensions increase the prospects of environmental peacebuilding in general. For the international level, he adds a tradition of environmental cooperation and consensus about the scope and nature of environmental problems, while the involvement of relevant decision makers and high levels of environmental stress facilitate environmental peacebuilding within states. Focussing on intrastate environmental peacebuilding, Johnson et al. (2020) highlight the importance of bottom-up approaches, compatibility of projects with local realities, and the generation of concrete benefits as important determinants of environmental peacebuilding. Negative effects on peace as substantial integration, by contrast, prevent success regarding any other dimension of peace as well.

The negative effects of environmental peacebuilding

Since the emergence of the research field in the early 2000s, critical scholars have expressed concerns that environmental peacebuilding might have negative effects, or even serve as a smokescreen for other interests (Duffy 2002). One can distinguish between six potential adverse impacts of environmental peacebuilding practices (Ide 2020):

First, a focus on environmental issues can cause a marginalisation of the political problems underlying (armed) conflicts. Israeli-Palestinian water cooperation, for example, has been criticised for focussing on unpolitical, technical issues like knowledge exchange and joint monitoring. The structural inequalities underlying the conflict, such as unfair water distribution and the Israeli occupation of the West Bank, by contrast, remain unaddressed. This "invisibility" perpetuates the unequal and conflict-prone status quo (Aggestam and Sundell 2016).

Second, environmental peacebuilding might lead to involuntary displacement and the associated side effects (such as community distortion and poverty). The cooperative establishment of transboundary conservation areas, such as the Limpopo peace park in South Africa, has in the past frequently resulted in forced resettlement of local communities (van Amerom and Büscher 2005). Such measures are often deeply rooted in Western assumptions of locals as drivers of environmental degradation (Marijnen et al. 2020).

The third negative impact of environmental peacebuilding – discrimination – can be illustrated by a similar example. As part of the 1998 peace agreement between Ecuador and Peru, a peace park was created in the contested Cordillera del Cóndor region. The subsequently established conservation regime discriminated against the local indigenous population by restricting their access to the park. This ocurred despite a long history of indigenous communities collecting food and medical plants in the forested area, and against the background of an increasing incursion of commercial miners (Ali 2019).

In the worst case, unequal and discriminatory impacts of environmental peacebuilding cause an upsurge in conflicts (the fourth potential negative impact). John-Andrew McNeish (2017), for instance, claims that mineral, oil and gas extraction can pave a way for livelihood generation and peacebuilding in Colombia under critical scrutiny. Instead, such (legal) extraction often violates human rights and degrades ecosystems in the surrounding areas. Usually peaceful resistance is then crushed through violence against environmental defenders by armed or criminal groups, on which many state authorities turn a blind eye.

If state agencies are (perceived to be) complicit in environmental peacebuilding projects with adverse impact, a fifth negative effect may arise, that is, a loss of trust in and legitimacy of the state. But even successful NGO environmental management and livelihood strengthening projects can facilitate an "outwards redistribution of state functions" (Jones et al. 2014: 79) as state institutions lose funding and legitimacy vis-à-vis civil society actors.

Sixth, and lastly "environmental […] cooperation might constitute simply more efficient resource plunder" (Conca and Beevers 2018: 55). Barquet (2015), for example, argues that the Si-A-Paz ("Yes to Peace") transboundary conservation area between

Costa Rica and Nicaragua yielded very few actual peace effects, but paved the way for oil exploitation in border areas through increased state control and the exclusion local communities. Deforestation in Colombia also increased in formerly FARC-controlled areas after the peace process started, illustrating that the latter provided opportunities for resource exploitation rather than for sustainable ecosystem management (Prem et al. 2020).

This is not to say that environmental peacebuilding always or mostly has such negative effects. The evidence provided above demonstrates that environmental management and cooperation can have substantial peacebuilding effects in terms of preventing violence, building trust, and strengthening capabilities. Rather, this section cautions scholars and decision makers to monitor environmental peacebuilding practices for exclusions, inequalities and vested interests. Disentangling which design factors and contexts make the occurrence of such a "dark side" of environmental peacebuilding more or less likely is a major task for future research (Ide 2020).

5

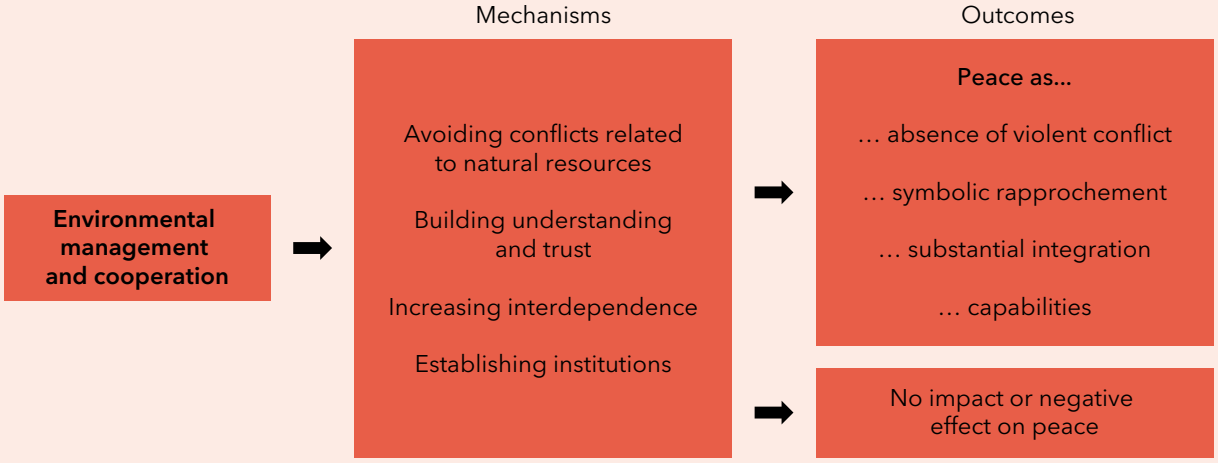
Conclusion

The growing environmental peacebuilding field of research serves various important functions. It provides a corrective to the predominant focus of environmental and climate security research on conflict outcomes (Swain and Öjendal 2018). It evaluates possibilities to address two major challenges of our time – global environmental change and armed conflict – simultaneously (Ali 2007). It puts attempts to label resource exploitation or the persistence of (structural) violence as environmental protection or peacebuilding under critical scrutiny (Johnson 2019; Marijnen et al. 2020). Finally, by focussing on peaceful adaptation to environmental stress, it provides knowledge relevant to a broad range of practitioners in the fields of peacebuilding, conservation, development, climate change adaptation, and disaster risk reduction (Abrahams 2020).

While it is too early to draw definitive conclusions, a growing number of studies suggest that cooperative environmental management is contributing to peace, both between and within states. Results are most robust for the capabilities dimension, but there is evidence for peace as the absence of violent conflict and as symbolic rapprochement as well. As of yet, contributions of cooperative environmental management to peace as substantial integration were rare and limited to the local level. Furthermore, the success of environmental peacebuilding is strongly dependent on a number of design and context factors, such as local ownership and the absence of recent conflict escalation. There are numerous cases where environmental peacebuilding practices had no impact or negative effect on peace, the environment, and development.

Future research on environmental peacebuilding will close existing knowledge gaps. While recent reviews of the literature provide a broad range of suggestions for further work (Dresse et

Figure 1. Overview of the conceptual framework used in this working paper



al. 2019; Ide 2019; Ide et al. 2021a; Johnson et al. 2020), I will focus on three knowledge gaps here.

First, a further specification of the pathways connecting environmental cooperation or management to peace is required, and we need empirical evidence showing in which contexts these pathways are most (or least) likely to work. This is challenging as the pathways laid out here (as well as possible alternative sets of pathways) can be strongly intertwined in some cases. Many existing case studies also only provide limited information about specific environmental peacebuilding pathways. Knowledge about the underlying causal chains is crucial to refine theory, increase trust in existing empirical evidence, and design adequate policy responses.

Second, the geographical scope of environmental peacebuilding research should be broadened. So far, Colombia, southern and western Africa and the Middle East have received the most attention. Several studies also exist for Central, South and Southeast Asia as well as East and North Africa, but comprehensive knowledge on environmental peacebuilding in these regions is still lacking. Latin America (except for Colombia) and the Pacific (except for Timor-Leste) are still under-researched despite the presence of various environmental vulnerabilities, conflict histories, and socioeconomic problems.

Finally, gender is a crucial, yet hardly investigated issue in the context of environmental peacebuilding. Women often play important roles in mediating conflicts and managing natural resources, yet at the same time, they can also be highly vulnerable because their livelihoods are strongly tied to ecosystem services, they have no formal land rights, and they are subject to sexual violence (UNEP et al. 2020). Specifying the role these capabilities and vulnerabilities play, and finding ways to utilise or address them, would further strengthen the empirical foundations and practical relevance of environmental peacebuilding (Yoshida and Céspedes-Báez 2021). This is also true for the role of sexual minorities and gender roles (such as those related to violent masculinities) at the intersection of resource management, adaptation to environmental change, and peacebuilding (Fröhlich and Gioli 2015; Gaillard et al. 2017).

Addressing these research gaps and producing further comprehensive knowledge on environmental peacebuilding is no easy task. But if the resulting insights support the creation of a more peaceful and sustainable future, these efforts will certainly pay off.

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