The Future of Environmental Peace and Conflict Research

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The Future of Environmental Peace and Conflict Research

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ABSTRACT
Interest in the intersections of environmental issues, peace and conflict has
surged in recent years. Research on the topic has developed along separate
research streams, which broadened the knowledge base considerably, but hardly
interact across disciplinary, methodological, epistemological and ontological
silos. Our forum addresses this gap by bringing into conversation six research
streams on the environment, peace and conflict: environmental change and
human security, climate change and armed conflict, environmental peacebuild-
ing, political ecology, securitisation of the environment, and decolonizing envir-
onmental security. For each research stream, we outline core findings, potentials
for mutual enrichment with other streams, and prospects for future research.

Introduction: advancing environmental peace and conflict research

Tobias Ide and McKenzie F. Johnson

Policy interest in the intersections of the environment, peace and conflict[1]
has intensified in response to persistent and rapid environmental change.
This is illustrated by heated debates about land grabbing in the Global South,

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efforts by UNEP to integrate environmental policies into peacebuilding missions, several UN Security Council meetings on climate change and security, and sustained debates about conflict sensitivity in conservation, resource extraction and climate change adaptation (McDonald 2021).

Scholarship has both responded to and shaped these discussions. In this forum, we bring into dialogue six crucial, yet often disconnected research streams: environmental change and human security, climate change and conflict, environmental peacebuilding, political ecology, securitisation of the environment, and decolonising environmental security (see Table 1 for an overview[2]). In so doing, we seek to highlight areas of common interest and pave the way for more fruitful exchanges between streams.

Beginning in the 1990s, environmental security research started to theorise how environment and natural resources affected conflict dynamics in the post-Cold War period. Arguments that natural resource scarcity, but also an abundance of valuable resources (like oil or diamonds) contributed (in)directly to social instability reinforced the perceived need for policies to mitigate environment-conflict linkages (Homer-Dixon 1999). Political ecologists, by contrast, rejected 'automatic, simplistic linkages' between environment and conflict, highlighting instead the structural, cultural, and direct forms of violence generated by power asymmetries at various scales (Peluso and Watts 2001, p. 5).[3] Similarly, environmental peacebuilding scholars challenged environment-conflict linkages, arguing instead that environmental change can induce social responses that render violent conflict less likely (Conca and Dabelko 2002).

In the mid-2000s, scholars moved beyond the primary focus on natural resources to investigate the relationship between climate change and conflict, stimulating a polarised debate on whether and how climate change increases conflict risks (Gleditsch 2012). These concerns increasingly made climate change an issue of national security. Human security scholars, in turn, criticised the focus on environment and climate as national security issues, arguing it would 'not necessarily equate to better lives for most people' (Barnett et al. 2010, p. 7). Securitisation scholars also questioned the construction of environment and climate as security issues, and in doing so provided nuanced (and often critical) analyses of how the environment is linked to conflict in public and policy debates (McDonald 2013). Decolonial scholars similarly challenged dominant conceptualisations of environmental (in)security and highlighted that security constructs are deeply rooted in Western epistemologies and entangled with oppressive social structures and systems (Rodríguez and Inturias 2018).

Despite considerable advances, however, cumulative knowledge generation remains constrained by the tendency of scholars within each stream to *react to* rather than *think with* other streams. That is, scholars rarely move beyond the disciplinary, methodological, epistemological, and ontological silos of

Table 1. Overview of the six research streams contributing to environment, peace and conflict studies.

Research Stream	Key Ideas	Key Works
Environmental Change and Human Security	• Shifts security focus from the state to individuals or groups and prioritises basic human needs, rights, and values • Insecurity from environmental change is a function of social processes that produce vulnerability • People require the freedom/opportunity to avoid or adapt to environmental change • Mixed-methods research approach that maps the cross-scalar dynamics of vulnerability in the context of social and environmental change	(Daoudy 2021; Barnett et al. 2010; O'Brien and Barnett 2013)
Climate Change and Conflict	• Climate change affects organised armed conflict within countries • The influence of climate is likely small compared to other conflict drivers • Climate change increases conflict risks in areas characterised by low socio-economic development, low state capabilities, intergroup inequality, and recent history of violent conflict • Predominately positivist, empirical, and quantitative approach that seeks to identify causal links between climate and conflict	(Gleditsch 2012; Mach *et al.* 2019; von Uexkull and Buhaug 2021)
Environmental Peacebuilding	• Challenges the idea of a unidirectional link between environment and conflict • Resource management can contribute to a continuum of peace outcomes by addressing security at multiple levels, contributing to livelihoods and the economy, and enhancing political and social relations • Environment can constitute a technical and thus less politically contested issue, which creates 'neutral space' for cooperation • Predominately qualitative research design drawing on case studies to identify how resource management can be supportive of conflict prevention, resolution, and recovery	(Conca and Dabelko 2002; Ide *et al.* 2021; Johnson et al. 2021; Krampe *et al.* 2021)

(Continued)

Table 1. (Continued).

Research Stream	Key Ideas	Key Works
Political Ecology	• The effect of environment change on conflict in society is always socially mediated given the environment is a human construct • Environmental conflict is typically a function of the structural and social dimensions of uneven power relations, reflecting differential access to and control over natural resources • Conflicts are sites of political struggle that enable vulnerable actors to challenge and transform dominant power structures and subjectivities • Critical approach that is field based, historically grounded and empirically driven	(Le Billon and Duffy 2018; Peluso and Watts 2001; Robbins 2020)
Securitisation of the Environment	• Security issues (including the environment) do not exist objectively, but are constructed through discourses, ideas, and human interactions • Securitisation can mobilise environmental action, but also facilitate an approach to addressing environmental issues that is superficial, short term, and elite-centred • The securitisation of an issue is inherently political as it emphasises different affected reference objects and solutions, thereby benefitting certain interests over others • Employs critical constructivist and post-structuralist research methods to analyse narratives, practices and discourses	(Buzan et al. 1998; Maertens 2018; McDonald 2013; Trombetta 2008)
Decolonising Environmental Security	• Social and environmental violence is a consequence of modernity, capitalism, and the expansion of a Western cultural imaginary • Deconstructs hegemonic social paradigms to disrupt oppressive, extractive, and exploitative power structures • Highlights the coexistence of diverse ontologies and epistemologies that constitute the pluriverse • Poststructuralist and postcolonial critique centring the worldviews of non-Western and more-than-human individuals and groups	(Escobar 2014; Rodríguez and Liz Inturias 2018; Vélez-Torres et al. 2022)

a particular stream to engage in productive exchange around issues of environment, peace and conflict. As an example, decolonial scholars, given their understanding of the state as a source of insecurity, often criticise human security and environmental peacebuilding scholarship for its embrace of the state as

a mechanism to mitigate insecurity (Vélez-Torres *et al.* 2022). Political ecologists dismiss climate conflict scholarship based on its use of large-N quantitative methods, which they contend cannot capture the ways in which environmental conflict is socially produced. These research streams thus often perceive themselves as correcting for deficiencies in other streams rather than building on shared insights.

Our forum seeks to foster constructive engagements between these streams. It brings into conversation leading scholars in each research stream and, by doing so, aims to outline an integrative agenda for further research on environmental peace and conflict. This outline is broad, inviting, and up for further discussion, rather than narrow, authoritative, and final. Our primary objective is to demonstrate that many of the streams overlap in their focus on environment-peace-conflict interlinkages and have considerable potential to think with and thus enrich each other (see Table 2 at the end of the forum for an overview).

To provide a few notable examples: Climate and conflict scholarship could help environmental peacebuilding scholars identify the conditions under which climate-induced conflict is more likely, and thus allow them to better target interventions (Abrahams 2020). A combination of decolonial and critical human security scholarship may highlight the potential for securitisation discourses to perpetuate uneven power relations and oppressive social structures (Daoudy 2021). Benjaminsen and Ba (2019) have also combined political ecology, climate conflict and human security approaches to disentangle complex environment-violence interlinkages in the Sahel. Studies employing such synergies between different research streams remain rare, however.

Each contribution to this forum takes on the perspective of one of the six research streams discussed above. Within the limited space available, we focus on these streams as they defined environmental peace and conflict research in the past years. Each contribution to this forum addresses two questions: (1) What are the key conceptual and empirical insights produced by the respective research stream? (2) What key tasks for future research can be addressed by drawing on or integrating other research streams?

We believe this forum comes at a particularly crucial juncture. With national and international tensions on the rise, and the global and local environments changing at a rapid pace, understanding the intersections of environment, peace and conflict is more urgent than ever. The insights and tasks outlined in this forum will help to enhance such an understanding.

Environmental change and human security

Jon Barnett

One research stream on environment, peace and conflict concerns the ways in which environmental change undermines human security, which can be considered a form of violence in its own right, and which in turn has been hypothesised to amplify the risk of armed conflict.

What are the key conceptual and empirical insights produced by the human security research stream?

Human security is the condition in which people and communities have the capacity to respond to threats to their basic needs and rights, so that they can live with dignity. Environmental change threatens these conditions for dignified lives, and so constitutes a risk to the security of persons (O'Brien and Barnett 2013). The ways in which people and communities attempt to sustain their security in the face of environmental change may influence peace and conflict.

Human security is a lens through which to analyse the risks environmental change poses to human well-being, focussing on risks to the basic needs and human rights of the most vulnerable people and communities. Empirical research shows that environmental change can cause significant declines in access to basic needs as defined by the International Covenant on Economic, Social and Cultural Rights (ICESCR), such as shelter, water and food, the satisfaction of human rights including the right to health, and the right to be free from hunger (Adger *et al.* 2014).

Human security also alludes to the connections between deteriorating environmental conditions and armed conflict. This includes analysis of a possible cause between deteriorating human conditions and the risk of armed conflict, the evidence for which remains scarce. It also includes the ways in which armed conflict increases the environmental insecurity of people, about which there is plenty of evidence, and which can help inform environmental peacebuilding practices in (post) conflict areas (see Krampe in this forum)

Human security is also a 'securitising' device to help increase recognition of the needs of those most at risk from environmental change in environmental, development, and security institutions. In this way human security adds to the legitimacy challenge that environmental change poses to national security institutions (see Maertens in this forum). It also links the widest range of analytical scales, potentially bringing, for example, the rights of girls in Mali coerced into early marriage during times of drought into conversations about family planning, climate mitigation and adaptation, and peace-keeping. Human security also acts a boundary concept that enables new

conversations between diverse policy communities at and across various scales (O'Brien and Barnett 2013).

Yet human security is somewhat of an idea looking for a home. It is not clear, for example, if the idea of human security has really affected any change in traditional national or international security institutions, perhaps because there are too few actors interested in its institutionalisation. Nor is it clear if the concept of human security will inform the work of the coalition of interests now forming around the concept of climate security (such as, for example, the UN's Climate Security mechanism, the Group of Friends on Climate Security, and various thinktanks and NGOs). Moreover, if it does, it then becomes important to examine what forms that response takes, and who is interested in it, since there may be a risk of inappropriate militarisation of the issue in the way that concerns critics of environmental security (see Maertens in this forum)

What key tasks for future research can be addressed by drawing on or integrating other research streams?

A human security lens helps to integrate diverse strands of research on environment, peace and conflict as it draws attention to way local actors are affected by, perceive and respond to environmental change (Daoudy 2021). In this sense, a human security lens grounds problems of environmental change and violence in the impacts on and responses of people in specific localities. Yet many questions remain, including, for example, about whether there is an association between societies with a higher proportion of people with resource-dependent livelihoods and those that have a higher risk of armed conflict, and in case the latter is true, if this is because of environmental change or associated deficits in economic and political institutions that mitigate conflict risk (see von Uexkull in this forum). Answering these questions demands field-based knowledge of the response of farmers and fishers and pastoralists to environmental change, and if these are in some way conducive to conflict. Similarly, if there are causal connections between environmental change and migration and armed conflict, then evidence of the response of people to environmental change is key.

Human (in)security is implicated in research on environmental change and armed conflict. This is most apparent in research that suggests that people whose livelihoods primarily depend on rainfall may respond to drying in ways that are violent, particularly in countries where there are inadequate social protection and conflict prevention mechanisms. Yet theories and evidence to explain the pathways whereby declining rainfall leads people to choose violence are lacking. It may be that environmental insecurity leads to increased criminal behaviour and recruitment into militia and militaries, and detailed evidence of this would be useful, though such research needs rich

qualitative data and strong sampling protocols to control for culture, economic conditions, gender, and formal and informal institutions.

In terms of research on environmental peacebuilding, there is a need to recognise that environmentally vulnerable people may pursue non-violent forms of collective action in times of crisis, and for research that explains the ways of and propensity for such responses. On this basis, scholars can learn from the existing practices of vulnerable people to devise more effective and equitable governance and peacebuilding processes.

Given the general agreement that macro political-economic factors better explain armed conflict than environmental ones, securitising environmentally insecure people as agents of violence excludes the possibility of non-violent responses, overlooks the responsibility of coloniality and far more powerful actors and (state and international) institutions in initiating both environmental harms and armed conflict, and justifies interventions to control people and their resources by militaries and commercial interests. Conversely, as political ecologists would suggest, human security research that centres the human subject can uncover the deleterious social and environmental consequences of securitised, militarised and colonial responses to environmental change as well as the structures that enable such responses (see Le Billon in this forum). Critical research on human security can therefore help to decolonise environmental security by recognising and representing the experiences, ideas, interests and rights of environmentally insecure people in knowledge and practice (see Vélez-Torres & Johnson in this forum). In the best case, this can result in participatory rather than prescriptive responses to environmental change (Daoudy 2021).

Climate change and armed conflict

Nina von Uexkull

Does climate change increase armed conflict risk, and if so, under what circumstances and how does this relationship emerge? Over the past 15 years, research on this question has rapidly expanded in parallel with debates among policy makers (see Maertens in this forum). Many studies have been conducted on global, regional and sub-national patterns often using quantitative methods fitting the scale and nature of this overarching question. Employing a positivist research perspective, the research field aims to assess how different aspects of global warming, such as droughts, floods, storms as well as temperature and precipitation variability, directly or indirectly relate to armed conflict. Research on climate and conflict has mainly focused on the likelihood and severity of deadly organised (physical) violence, in particular non-state conflict between groups (e.g., communal

violence) and state-based conflict involving the government within a country (e.g., civil war).

Yet over time, the focus has broadened. In particular, there is increased attention to pathways: factors that are affected by climate and which in turn impact conflict risk. Examples of these are human security impacts such as water and food insecurity and agricultural production shocks which negatively affect rural livelihoods (see Barnett in this forum). This broadened research agenda also increasingly covers other outcomes which are still closely related to armed conflict such as protest behaviour and attitudes to violence and other (ethnic) identity groups (for a recent review and special issue, see von Uexkull and Buhaug 2021). Empirically, Sub-Saharan Africa has attracted most scholarly attention (Adams *et al.* 2018). Since the backbone of most studies of this kind is reliable data across large areas and long time periods, the emergence of detailed violent conflict and social unrest data first available for Africa is likely one reason for this.

What are the key conceptual and empirical insights produced by the climate change and armed conflict research stream?

While initial studies vividly debated whether climate and armed conflict were related at all, later work developed increasingly disaggregated, more complex tests of conditional relationships (von Uexkull and Buhaug 2021). Generally, research points to socio-economic and political context being much more important than climatic conditions for armed conflict risk in current societies (Mach *et al.* 2019, IPCC 2022). Behind this overall assessment is evidence that the nature and magnitude of impacts of climate-related hazards are significantly shaped by characteristics of the political and socio-economic system in which they occur. For example, poorer, agriculturally dependent populations' livelihoods are more sensitive to droughts, while industrialised high-income societies are more indirectly impacted and often see more extensive government aid to disaster-affected populations. Research therefore emphasises the sensitivity of local livelihoods and low economic development to broadly identify regions at risk (IPCC 2022).

Similarly, it is well-established that armed conflict increases societal vulnerability to climate change and many studies detect climate impacts on dynamics of existing conflict, such as the location of fighting and its severity (Buhaug and von Uexkull 2021). Critically, theoretical insights from political ecology (see Le Billon in this forum) on the role of power distribution and marginalisation have influenced studies identifying how institutions (e.g., political exclusion of ethnic groups from power, biased resource governing institutions, failing trust in the government) both are related to greater vulnerability to adverse environmental impacts but also condition where conflict risk is more likely to materialise following climatic hazards (e.g., Raleigh 2010).

What key tasks for future research can be addressed by drawing on or integrating other research streams?

While progress has been made, many knowledge gaps remain. Substantively, we know little about the impact of interventions to mitigate and adapt to climate change on armed conflict risk (von Uexkull and Buhaug 2021). This is a particularly relevant area of scientific inquiry as such interventions will in much greater scale be implemented as global temperatures continue to rise. Here, the research field and the analytical tools it applies can fruitfully draw on theoretical insights from, among others, political ecology and postcolonial theory to for example study under what conditions land-rights conflicts related to climate change adaptation and mitigation projects turn violent (see Le Billon and Vélez-Torres & Johnson in this forum).

A further priority is to exploit new analytical tools, such as machine learning, and new data sources such as social media data. A recent fruitful example is Koren *et al.*'s (2021) study on food and water insecurity expressed in geo-located twitter data and identified using machine-learning algorithms. In a similar manner, geo-located statements from local actors on social media could, for example, help to simultaneously study local cooperation and conflict actions related to climate-related interventions and climate-related hazards and thereby integrate with research on environmental peace-building (see Krampe in this forum). Machine learning more generally can also be fruitfully used in identifying future hotspots and to assess the importance of environmental variables compared to others in predicting where violence may occur.

Finally, a pressing issue is to improve assessments and scenarios of plausible future developments. For good reasons, research has focused on observed relationships in current societies and the past. Yet, this focus does not respond well to the main concern underlying this research agenda which concerns the implications of projected future temperature increases. For example, how will increasing migrations flows in response to unprecedented future climate changes shape, and be shaped, by armed conflict? While a sizeable body of literature studies climate, migration and conflict, there is a lot of uncertainty about what this research can say about the coming decades of unprecedented global warming (von Uexkull and Buhaug 2021). This is problematic since future consequences are likely more severe than what we have experienced to date (Mach *et al.* 2019). Assessing the trajectory of human security (see Barnett in this forum) and conflict outcomes, and their interactions, in decades from now is perhaps the most challenging, but also a pressing step for this research agenda. Learning from and adopting approaches from fields across natural and social sciences that have a longer tradition working with future scenarios is one fruitful approach to step up to this challenge.

Environmental peacebuilding

Florian Krampe

Emerging in the late 1990s against the backdrop of increased debate around the links between environmental scarcity and conflict, environmental peacebuilding can be defined as the conflict-sensitive and sustainable management of renewable natural resources in conflict-affected or post-conflict states that supports sustainable and resilient peace. It focuses on the social, economic, and political conditions for peace and how they can be strengthened by environmental politics and management (Krampe *et al.* 2021).

What are the key conceptual and empirical insights produced by the environmental peacebuilding research stream?

In the last years, there has been important growth in academic research on environment and peacebuilding, with quantitative studies, but especially a substantive amount of qualitative case studies emerging (Ide *et al.* 2021, Johnson *et al.* 2021). The latter studies have started to stress more frequently the focus on the local, everyday experience of environmental peacebuilding. This is important, as some key dynamics of environmental peacebuilding are playing out at the local level. A better understanding of these dynamics within and between local communities is needed (Ide *et al.* 2021). In addition, a focus on the negative implications of environmental peacebuilding – linked to the broader maladaptation debate and often termed backdraft or boomerang effect – is slowly emerging. This work provides deeper understanding of the unintended and unanticipated consequences that environmental peacebuilding interventions could have (Ide 2020). Further research of this kind (see Le Billon and Vélez-Torres & Johnson in this forum) is necessary to on the one hand avoid overromanticizing the environmental peacebuilding concept. On the other hand, it provides lessons for preventing future conflicts that might be triggered by poorly planned and managed climate adaptation and mitigation (see von Uexkull in this forum) and – ideally – turn these risks into opportunities to produce positive peace legacies.

Despite considerable progress, recent studies highlighted the need to advance scholarship to better theorize the causal understanding of natural resource management in post-conflict settings (Johnson et al. 2021, Krampe *et al.* 2021) and of providing proof of the contribution of environmental peacebuilding initiatives to positive peace (see Barnett in this forum).

What key tasks for future research can be addressed by drawing on or integrating other research streams?

A key task ahead will be to generate evidence on why environment-related projects – e.g., natural resource management and climate action – contribute

to such positive peace legacies and across different contexts. To do so, three areas of future research seem critical:

First, there is a need to contribute to a better theoretical understanding of the dynamics and causal processes of environmental peacebuilding. Even though UNEP's Environmental Cooperation for Peacebuilding Program saw a substantial effort of co-creation of knowledge, it is still unclear whether environmental cooperation and resource management efforts do actually support peace processes, 'because, in the end, the studies only suggest that conflict risks increase when post-conflict natural resource management is neglected' (Krampe *et al.* 2021, p. 4). While some mechanisms have been proposed (Krampe *et al.* 2021, Johnson *et al.* 2021), rigorous, comparative studies that test environmental cooperation as an independent variable are still needed to validate and refine the environmental peacebuilding hypothesis.

Research should specifically focus on understanding the local-level dynamics, not least with an eye towards marginalised groups to critically reflect on the nature of environmental peacebuilding approaches (see Le Billon and Vélez-Torres & Johnson in this forum). This includes locally driven initiatives and dynamics between communities and understanding of local-level needs, including the role of gender (Krampe *et al.* 2021), but also more formal processes, e.g., in the specific – often restricting – context of peacekeeping operations and special political missions. In that regard, comprehensive comparative studies are needed to contribute to the increasingly complex and pressing post-conflict landscape in times of climate change. This will also require understanding the role framing and of securitising actors at the international, national and local levels (see Maertens in this forum).

Second, research on environmental peacebuilding remains often divided along different disciplines, especially between the environmental governance and peace and conflict research literature. It is notable that key concepts from the peacebuilding literature, such as hybrid peace, everyday peace, or relational peace do find few if any references in the current environmental peacebuilding debate. And vis-versa, the peacebuilding literature too often ignores environment-related impacts, dynamics, and opportunities. The summary table provides some clearer entry points how Environmental Peacebuilding can enrich different disciplines and research areas covered in this forum (see Table 2). With the increasing double burden of climate change and conflict on already highly socially and economically vulnerable populations, research on climate change and armed conflict will be critical to better inform climate-sensitive peacebuilding responses (see von Uexkull in this forum). With the majority of peacebuilding efforts in areas highly exposed to climate change (Krampe 2021), the combination of research on climate-related security risks and environmental peacebuilding has specific

significance in better equipping multilateral peace efforts to respond to the changing and evolving peace requirements of post-conflict societies, while at the same time tempering the human impact on the planet's ecosystem.

Third, future research needs to better connect scholarly research agendas to the actionable application of development and peacebuilding processes. International actors across the humanitarian-development-peace nexus are grappling with integrating environmental issues and climate-related security risks into their programming and overcoming silos. These actors will need independent, scientifically guided assessments that generate concrete and timely policy-relevant evidence that can guide future policymaking and programming. This needs a better causal understanding and focus on what works and what does not. Such assessments must go beyond monitoring and evaluation efforts who often are limited to project-related indicators only and therefore at times is not cognisant of the wider social and political impacts practitioners inevitably will have. For that, the co-production of knowledge between researchers and policy actors will be key to gain best possible access to programming and decision-making processes and to advising and enabling policy makers on more adaptive and iterative peace processes. To be successful, the agency and ownership of local actors and their demands for environmental justice need to be considered to enable sustainable peace (see Le Billon and Vélez-Torres & Johnson in this forum).

To address some of the above gaps and further enrich and develop environmental peacebuilding as a multidisciplinary research stream, interactions with other research areas will be central. Especially, a closer connection to research on climate-related security risks seems particularly promising and urgent.

Political ecology

Philippe Le Billon

Political ecology research examines the causes and consequences of uneven power relations over natural resources and the environment.

What are the key conceptual and empirical insights produced by the political ecology research stream?

Key conceptual insights of political ecology relate to the interplay of social structures, imaginaries, and materialities shaping differentiated environmental access, impacts, and responsibilities (Latour 2004, Rocheleau *et al.* 2013, Sultana 2020). Social structures are conceptualised through historically and geographically grounded intersectional subjectivities, including gender, race, class, and other culturally defined criteria. These configurations are frequently questioned and rejected, thus becoming the source of political

struggles over particular places, environments, and ecological processes (Robbins 2020). These struggles, in turn, mobilise different imaginaries, valuations and material relations between and among protagonists (Peluso and Watts 2001).

Empirically, political ecology follows field-based and historically grounded approaches to expose the structures and practices influencing access, use, and impacts on the environment, with a focus on the distribution of burdens and benefits arising from mostly nature-based production and environmental change. Political ecology also often seeks to challenge unfair property regimes and to improve the bundle of rights and practices that define control over, access to, and use of environmental goods and services.

Common topics in political ecology include conflicts over capitalist neo-liberal regimes of dispossession and accumulation (such as the privatisation of the commons) or the imposition of exclusionary conservation rules. Importantly, conflicts are understood as political struggles potentially enabling vulnerable actors to challenge and transform dominant power structures and subjectivities. Paying attention not only to classical forms of resistance and repression but also a wide range of socio-environmental relations including consent, collusion, and co-optation, political ecology often recognizes various forms of violence – from overt and even spectacular forms of physical violence to intimate, insidious and 'slow' forms of violence such as pollution (Nixon 2011).

As political ecology often understands conflict as an emancipatory expression of demands for environmental justice, it can be at odds with environmental peacebuilding (see Krampe in this forum), since attempts to preventing or ending conflicts may be interpreted as 'pacifying' efforts that risk undermining the emancipatory struggles of aggrieved communities (see Vélez-Torres & Johnson in this forum). More generally, there are thus not only potential synergies, but also tensions and contradictions between political ecology and conflict studies. Political ecology, for example, sharply criticises the depoliticising effect of environmental deterministic conflict studies identifying resources or climate change as 'causing' conflicts (Le Billon and Duffy 2018; see also von Uexkull in this forum).

What key tasks for future research can be addressed by drawing on or integrating other research streams?

Political ecology concepts, arguments, and methods can contribute to future research, while also benefiting from, enriching, and interacting with other research streams.

A first avenue is for political ecology to continue challenging core concepts and paradigms within traditional approaches towards environment, peace, and conflict. This means bringing more historical, post-colonial, and political dimensions into research on environment, peace, and conflict

relations (see Vélez-Torres & Johnson in this forum). For example, political ecology has already engaged with critical studies on the securitisation of the environment, a task which it could further deepen as new securitisation objectives and processes emerge (see Maertens in this forum). Political ecology can also enrich environmental peacebuilding research (see Krampe in this forum), helping it to move towards socio-environmental peacebuilding, by giving even more attention to historical contexts and drawing more heavily on environmental justice approaches as well as better understanding the importance of emotions in environmental conflicts (Sultana 2021).

A second avenue is to deploy new tools and methods to gain greater policy traction. This includes using hybrid modes of enquiry bridging participatory ethnographic approaches and large dataset analyses. Within political ecology itself, the Environmental Justice Atlas (EJAtlas) has made a tremendous advance by providing 'a wider systematic evidence-based enquiry into the politics, power relations and socio-metabolic processes surrounding environmental justice struggles locally and globally', with currently about 3,700 environmental conflicts documented throughout the world (Temper *et al.* 2015, p. 255). Political ecology can further interact with quantitative approaches within environment and armed conflict studies (see von Uexkull in this forum).

A third avenue is to continue to re-politicise and decolonise understandings of environment, peace and conflict, notably by challenging ontological dualisms and accounting for past (and present) colonial praxis (see Vélez-Torres & Johnson in this forum). Paradigmatically, this means reconsidering conflicts as a process of emancipation and decolonisation, rather than as symptoms to be addressed for their own sake. It also means examining more closely how environmental and land defenders contribute in their own ways to environmental peacebuilding (Menton and Le Billon 2021), and how the environmental peacebuilding community can better support community mobilisations and the advancement of contextualised, embodied, decolonised, and Indigenised forms of peace. In practical terms, this means more collaborative, diverse and community-driven research approaches and ethical practices. In this respect, political ecology can interact more closely with research on decolonising environmental security and on environmental change and human security (see Barnett in this forum).

A fourth key task for political ecology is to further build its strength in decentring humans from environment, peace, and conflict analyses, without falling into the frequent racism of nature/culture divides or the brutal biases of eco-centric militarised conservation. Political ecology, in this respect, develops important new scholarship and perspectives on post-humanism and the non-human (Collard *et al.* 2015). This uses, for example, actor-network and assemblage theory, feminist and decolonial approaches, concepts about socio-nature's rights and socio-environmental restorative justice.

Methodologically, this notably entails deciphering the relative agencies and aspirations of the non-human, including through Indigenous forms of knowledge and new smart earth technologies (Bakker and Ritts 2018).

In sum, political ecology can contribute much to environment, peace and conflict research. This includes reflecting on the depoliticisation and pacification role the field can occasionally play on the reproduction of uneven power relations and various forms of violence against peoples and socionatures.

Securitisation of the environment

Lucile Maertens

When developing the concept of securitisation, the Copenhagen School investigated the discursive and intersubjective designation of existential security threats in five sectors including the environment (Buzan *et al.* 1998). While they argued at the time that the environmental sector was more politicised than securitised, their analytical framework spurred a vibrant literature on the social construction of the environment as a security issue (Trombetta 2008, McDonald 2013, Rothe 2016).

What are the key conceptual and empirical insights produced by the securitisation research stream?

Without necessarily denying any tangible links between the environment and (in)security, securitisation theories challenge the understanding of security threats as objective facts and draw attention to the practices which define the environment as a threat to peace and security. Building on and departing from the Copenhagen School, securitisation scholars have addressed the following questions: How is the environment securitised? Whose security is considered at threat and from which threats? Who are the securitising actors and who benefits (or suffers) from the securitisation of the environment? What are the consequences of a security framing applied to environmental matters?

Relying mostly on qualitative methods, including discourse analysis and practice tracing, and case studies, securitisation scholars identify different techniques through which the construction of environmental security threats unfolds. Initial research focused on the speech acts by which political elites designate issues such as high-value natural resources, environmental degradation or climate-induced migration as a cause of insecurity (Floyd 2010; McDonald 2013). Subsequent work has explored discursive struggles as much as non-discursive practices including security professionals' mundane everyday practices such as risk assessments and scenario planning (Trombetta 2008, Corry 2012, Oels 2012). Together, these studies have

shown the tensions between contrasting referent objects to be protected against different threats: while some actors declare that environmental change threatens (inter)national stability through its effects on conflict or migration (see von Uexkull in this forum), others adopt a human security framing to highlight the threats individuals and communities face from extreme weather events and environmental degradation affecting their livelihoods (see Barnett in this forum). Scholars have categorised the different referent objects as being either territorial, individual or planetary (Diez *et al*. 2016) while also noticing the blurriness of certain securitizing moves where both the referent object and the threat remain unidentified. Overall, this work shows that the environment is most often seen as the threat (e.g., by causing political instability) rather than being threatened (McDonald 2021).

By unpacking securitizing moves, these studies also reveal the variety of actors benefiting from the securitisation of the environment and the reconfiguration of power dynamics as a result of a security framing applied to environmental issues. First, research has shown how securitisation has helped put environmental issues on the (international) agenda by bringing a sense of priority and urgency. Yet echoing findings in political ecology, scholars have also warned against the militarisation of the environment, with a growing role for military actors in the environmental field, and the potential criminalisation of the use of natural resources by the most vulnerable communities (see Le Billon and Vélez-Torres & Johnson in this forum). Likewise, securitisation scholars have insisted on the risks of depoliticisation and simplification. On the one hand, the recognition of existential threats allows for exceptional measures bypassing time-intensive democratic debate. On the other, the focus on environmental causes can (inadvertently) promote a depoliticised understanding of conflict situations and lower the responsibility of domestic political actors. For instance, the Sudanese government pointed to desertification and climate change as causing the conflict in Darfur while eluding its own responsibility (Maertens 2018, p. 362).

Second, research on the securitisation of the environment stresses transformations in the security field. The framing of environmental threats has led military actors to adopt new practices inspired from the environmental sector such as preventive and non-confrontational action and risk assessments (Trombetta 2008, Estève 2021). To account for these transformations, scholars have also suggested additional concepts such as environmentalisation and climatisation. These concepts reverse the gaze: they highlight how security issues, actors and practices can be framed as related to the environment/climate change and relevant to environmental/climate policies (Oels 2012, Jayaram 2021, Maertens 2021). One consequence, for instance, is the increasing use of environmental and climate-related expertise in the security sector, which provides more legitimacy to such experts in this field.

What key tasks for future research can be addressed by drawing on or integrating other research streams?

These conceptual developments count among four promising avenues for research which can draw on complementary streams in environmental peace and conflict scholarship. First, future research should explore the effects of overlapping processes of securitisation and climatisation/environmentalisation, and other macro-transformations including the discursive shift brought by the environmental peacebuilding community which favours a peace framing instead of a security approach (see Krampe in this forum).

Second, empirically oriented research should expand the pool of securitising actors under scrutiny. Building on research aiming to decolonise environmental security, securitisation scholars should further investigate the agency and securitising moves of non-Western actors (Jayaram 2021; see also Vélez-Torres & Johnson in this forum), while also considering the reinforcing mechanisms between securitisation and (de)racialisation.

Third, in dialogue with political ecology, securitisation scholarship could question the human/non-human divide and the way it affects knowledge production; for instance, securitisation analysis' conceptual tools can shed light on the joint criminalisation of environmental defenders and indigenous forms of interaction with the environment (see Le Billon in this forum).

Fourth, in line with the commitment to unpack the political effects of security framings, securitisation scholarship could further explore the politics of its own production and consider methods to facilitate the coproduction of knowledge with securitizing and securitised actors, as suggested by others in the field of environmental peacebuilding, political ecology and decolonial studies. For instance, securitisation scholars could produce knowledge about the framing of environmental threats with the individuals supposedly threatened while also collaborating with peace and conflict researchers (see von Uexkull in this forum) to reflect on the political implications of climate security studies. Such a reflexive and inclusive approach could facilitate dialogue with scholars from different epistemologies and value practitioners' contributions.

Decolonising environmental security

Irene Vélez-Torres and McKenzie F. Johnson[4]

A decolonial approach to environmental security, including questions of peace and conflict, seeks to challenge and transform dominant understandings of 'environment' and 'security,' as such concepts remain rooted in (neo) liberal ontologies and epistemologies that evolved within and reflect colonial logics of exploitation and domination. The coloniality of power, which describes the unequal power relations that emerged within modernity

(Anibal Quijano 2000), is a fundamental concept in this research stream. It conveys how colonial/modern values and worldviews are disseminated through institutions, scientific knowledges, and discourses, creating forms of oppression that result in the subordination and marginalisation of subaltern humans (i.e., Indigenous peoples), of their knowledges and cultures, and of non-humans (Rodríguez and Liz Inturias 2018). Within this construct, a predominately reductionist and utilitarian approach to nature has accelerated socio-environmental degradation as it seeks to deliver 'security' in the form of economic growth and 'development.' Coloniality thus constitutes an ongoing project that employs mechanisms of socio-ecological exploitation to dominate Global South and ethnic societies (Rivera Cusicanqui 2012).

What are the key conceptual and empirical insights produced by the decolonisation research stream?

From a decolonial perspective, contemporary socio-environmental crises are explained as a function of extractivism (Escobar 2014). Extractivist models of development draw deeply on colonial/capitalist logics of accumulation by dispossession, enabling those in positions of power to appropriate and exploit both nature and human bodies to generate the wealth that drives 'development' (Rivera Cusicanqui 2012). The resulting hegemonic order violently subordinates alternative ways of valuing, knowing, and being (Hernández Morales 2020). It simultaneously focuses extractive harms on historically disadvantaged subjects. Environmental conflicts and communal resistance have accordingly expanded in number, intensity, and interconnectedness, especially in the Global South (Temper *et al.* 2015).

Failing to critically examine the colonial legacy inherent to environmental security risks reinforcing worldviews that produce socio-ecological injustice. Disciplines grounded in western ontologies and epistemologies, even critically oriented ones like political ecology (see Le Billon in this forum), perpetuate exclusionary hierarchies that limit their ability to unsettle hegemonic discourses of modernisation/development and neoliberalism. This means that not only are such approaches insufficient to protect nature and transform social conflict but can serve to reproduce modes of domination from old and new colonial centres of power (Rivera Cusicanqui 2012). For example, Vélez-Torres *et al.* (2022) argue that in Colombia, peacebuilding approaches which drew on critical environmental security approaches and were heralded for their 'inclusive nature' nevertheless failed to address preexisting power structures of exploitation/domination. This has reinforced neoliberal statecraft, which itself has marginalised the progressive struggles of local communities and undermined alternative social contracts for peace.

Decolonizing environmental security thus requires recognizing the persistence of coloniality and, through such recognition, transforming the

exploitative socio-ecological relations that (re)produce harm in subaltern humans and non-human territories (Rodríguez and Liz Inturias 2018). This entails not only unpacking historical, structural and symbolic relationships of oppression and struggles against it, but acknowledging, valorising and recentring alternative, and emancipatory epistemologies from the South (e.g., sumak kawsay, buen vivir). In this way, decolonial studies seeks to reposition historically denied sectors and populations to elaborate alternatives to modernity, progress and 'development' (Santos 2014).

What key tasks for future research can be addressed by drawing on or integrating other research streams?

We outline three areas in which decolonial studies can contribute to and benefit from the other streams discussed in this forum. First, decolonial studies can expand how environmental security disciplines conceptualise and define security, peace, and conflict. Integrating the Indigenous, Afro, eco-feminist, and southern theories that ground much of decolonial studies within research streams serves to challenge coloniality by deconstructing the boundaries that maintain the hegemony of western science/knowledge (Schulz 2017). Such a move can help researchers envision conflict and peace not as a deviation from or return to the status quo of modernity but as emancipatory projects attempting to empower non-western subjects in ways that deliver justice, dignity, and well-being, as well as create space for values and practices of intergenerational, intercultural, interspecies and interterritorial care. Political ecology perspectives, for instance, tend to view environmental conflict in terms of oppression rather than emancipation, which reflects colonial paradigms (see Le Billon in this forum). Expanding how we understand terms of environmental security is thus critical for transforming colonial legacies into pluriversal forms of liberation and empowerment (Escobar 2014).

On the flip side, decolonial studies needs to consider how it can incorporate some of the policy and empirical evidence generated by streams like environmental peacebuilding and climate and security without sacrificing its commitment to decolonial thought and practice. Researchers are generating important insights as to how climate/environmental change is likely to further impact historically marginalised groups, as well as the ways that states and armed actors might respond to these impacts (see Daoudy 2021 and von Uexkull in this forum). Such findings could both illuminate the challenges facing subaltern groups and underscore the importance of a decolonial approach to environmental security.

A second major area for future research surrounds the role of the state in environmental security. From a decolonial perspective, the state is not assumed to be a neutral force but an agent for historical capitalist accumulation and socio-ecological violence, for instance against environmental

defenders (Vélez-Torres *et al.* 2022). Looking to the state to recognise and accommodate decolonial demands for security and peace is thus paradoxical as such an approach threatens to reproduce coloniality via the securitisation of nature (see Maertens in this forum) and neoliberal ordering of societies. Political ecology, (critical) environmental security, and environmental peacebuilding all provide frameworks through which vulnerable populations can contribute to peacebuilding projects on their own terms (see Le Billon, Barnett and Krampe in this forum). Bringing together these perspectives to interrogate whether and how formal/contentious engagement with the state can generate decolonial, emancipatory, or just outcomes is thus a critical area for research.

A third and final area for future research highlights a need to better understand how to radically politicise our collective research practices in ways that transform oppressive power relations in knowledge production. Academic research reinforces top-down, capitalist, and colonial relationships of domination. Although environmental peacebuilding, political ecology, and human security disciplines have pushed to engage in more participatory and action-based research, these approaches have not gone far enough to challenge exclusionary and extractivist research methods (De la Cadena 2015). Rather, we need to make a political commitment to approach research through the prism of decoloniality and solidarity (Schulz 2017), and to learn from each other in the process so as to elevate the subjugated knowledges and voices of subaltern groups. Identifying new power and knowledge relationships is thus critical to precipitate the epistemological and political transformations required to decolonise environmental security and pursue pluralism and justice in peace-making.

Conclusion

McKenzie F. Johnson and Tobias Ide

With climate change threatening the livelihoods of millions of people, environmental aspects being routinely integrated into peacebuilding practices, and increasing global demand for resources intensifying local struggles in the Global South, the intersections of environment, peace and conflict are more important than ever. As shown by this forum, the corresponding research remains a vibrant field with several research streams producing important insights. Above, we provide numerous examples of how these streams contradict and challenge but can also, and more importantly, inspire and support each other. Table 2 briefly summarises how each research stream discussed (first column) can enrich the other streams (first line). There are significant complementarities between these diverse approaches, including in terms of methodology, epistemology and ontology.

Table 2. Overview about how the research stream can enrich each other.

How ↓ can enrich →	Environmental Change and Human Security	Climate Change and Armed Conflict	Environmental Peacebuilding	Political Ecology	Securitisation of the Environment	Decolonising Environmental Security
Environmental Change and Human Security	X	Integrates human insecurity, especially socially produced vulnerability, as a key intermediate variable between climate change and conflict	Expands environmental governance focus beyond the state to individuals or groups to ensure peacebuilding includes and is reflective of vulnerable populations	Moves beyond structural critique and enables vulnerable communities to identify factors relevant to their security by centring the human subject	Assesses the impacts of securitising the environment through a human security lens	Can open a rights-based, political space for historically marginalised groups to pursue/realise, the needs and values associated with their worldview
Climate Change and Armed Conflict	Analyses climate-related armed conflict as a driver of human insecurity	X	Simultaneously studies violent conflict and cooperation as outcomes of environmental stress and/or governance	Provides tools to evaluate how climate-related change feeds into conflict dynamics and demonstrates interconnections between localised conflict events	Generates empirical evidence on how environmental stress impacts security risks to better contextualise securitisation moves	Provides generalizable empirical evidence for the ways in which climate change is likely to further effect historically marginalised populations
Environmental Peacebuilding	Demonstrates how cooperative responses to environmental change affects human security	Analyses how climate change can act as a driver of cooperation and peacebuilding	X	Provides insights on the way environmental management can address resource conflict	Examines how a peacebuilding frame influences the securitisation of the environment	Provides an interdisciplinary framework through which vulnerable populations can pursue pluriversal approaches to environmental peace

(*Continued*)

Table 2. (Continued).

How ↓ can enrich →	Environmental Change and Human Security	Climate Change and Armed Conflict	Environmental Peacebuilding	Political Ecology	Securitisation of the Environment	Decolonising Environmental Security
Political Ecology	Outlines the socio-economic and ideational structure reproducing human insecurity	Historicises and politicises theorised conflict drivers to contextualise linkages between climate change and violent conflict	Questions understandings and subjects of peace, including assumptions of technicality that makes environment 'neutral'	x	Enables a critical analysis of the implications of securitisation moves for power relations within particular contexts	Critically examines how socio-political responses to environmental change perpetuate the marginalisation of subaltern groups
Securitisation of the Environment	Analyses how human security frames promote/exclude certain worldviews/interests	Demonstrates how climate-conflict analyses can reproduce problematic worldviews and policy responses	Studies how environmental peacebuilding practices rely on security language and the associated consequences	Analyses the larger discourses which justify local exclusions	x	Analyses how securitisation reproduces colonial structures and practices
Decolonising Environmental Security	Questions whether the (settler colonial) state can mitigate human insecurity if it is a primary driver of such insecurity	Highlights the priorities of those suffering most from climate change and conflict	Reveals the marginalisation of people and knowledge from the Global South in environmental peacebuilding practices	Questions the research practices and paradigms on which political ecology is based and provides new ontological perspectives	Provides insights on how groups outside the dominant Western security discourse understand and construct linkages between insecurities and environmental change	x

We maintain that a sustained dialogue between these research streams offers unique opportunities to challenge established wisdoms. In particular, this forum demonstrates the potential for 'mainstream' and 'critical' research streams to enrich each other.[5] We thus encourage both emerging and established scholars to employ this forum in ways that push the boundaries of existing knowledge on environment, peace and conflict.

Notes

1. We prefer this term as we focus 'narrowly' on the impacts of environmental factors on peace and conflict, rather than on broader topics often summarised under environmental security research, such as climate-induced migration or environmental impacts of war.
2. A comprehensive review of the literature is beyond the scope of this forum; thus, we provide a brief overview of key authors, arguments and recent reviews.
3. Throughout the article, we conceive violence as a continuum that can range from direct, physical to more structural forms of violence.
4. The original contribution was written by Vélez-Torres, who was appointed Colombian Minister of Mines and Energy during the revision process. Johnson afterwards led the revision process.
5. Even though there is considerable internal heterogeneity, we consider human security, climate change and conflict, and environmental peacebuilding as 'mainstream' and political ecology, securitisation, and decolonial approaches as 'critical' research streams.

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