

# Moving beyond natural resources as a source of conflict: Exploring the human-environment nexus of environmental peacebuilding

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Checkpoint near Qalqilya, West Bank.

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# **Moving beyond natural resources as a source of conflict: Exploring the human-environment nexus of environmental peacebuilding**

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## **Abstract**

Over the past decades, an increasing number of research studies have explored the linkages between the biophysical environment, environmental scarcity and violent conflicts. Contrary to the viewpoints concerning those linkages, environmental change and cooperation have emerged over the last decade as a potential pathway for conflict resolution. This approach, which is labelled as environmental peacebuilding, has gained influence in the scientific community, but also among international organisations and decision-makers. However, the multidimensional and interdisciplinary nature of notions such as “environment” and “conflict” have hindered scholars from reaching a consensual definition of this emerging concept. This IRI THESys Discussion Paper reviews the evolution, in the academic literature of the environment and natural resources, from cause of conflict to a peace vector. This paper concludes with a discussion on the limits and opportunities of “environmental peacebuilding” as an analytical concept, identifying contentious issues and research challenges.

**Keywords:** Environmental peacebuilding, Violent conflict, Resource scarcity, Literature review

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## 1. Introduction

It is often stated that the importance of the biophysical environment (the atmosphere, soils, water, fauna and flora) in conflicts relates to the provision of natural resources and the interconnectedness of ecological and social systems. Indeed, while the biophysical environment is often presented as a separate entity from human beings, this dichotomy between humans and an inert, external environment is challenged by researchers, who note the inseparability of humans and their natural surroundings (Robbins et al., 2013, Descola and Pálsson, 1996, Moran, 2007). This separation is further challenged by the global environmental changes, observed since the middle of the 20<sup>th</sup> century, which have highlighted the impact of human actions at the local level on a global scale (Moran, 2007). Moran (2010) adds that “human activities are constantly shaping and being shaped by the biophysical environment they evolve in”. Natural resources hence often represent different interests and values related to their use, availability, and market value. They can be politicised and then lead to disputes and violent conflicts. Instead of studying the biophysical environment as a passive, external entity, this paper focuses on the interactions between natural resources and human actions in times of conflict.

Since the end of the Cold War, researchers have increasingly explored the linkages between natural resources, security and violent conflicts. More specifically, security concerns correlating environmental issues with violent conflicts have been on the rise since the 1987 Brundtland Report identified environmental stress as a potential cause of conflict (Dalby, 2002, Floyd and Matthew, 2013). With the advent of securitisation theories in the mid-nineteen-nineties (Wæver, 1995) and the emergence of the environmental security concept, environmental issues and natural resources such as water, energy and climate change have increasingly been formulated in terms of security concerns by researchers and policymakers alike. Bearing in mind that around 40% of all intrastate conflicts over the past sixty years can be connected to natural resources, this trend is well documented, and it is currently widely assumed that environmental factors can play a key role in violent conflicts (FoEME, 2008, Matthew et al., 2009). While disputes involving natural resources have a higher chance of transforming into more sustained forms of conflict, natural resources alone are rarely sufficient to initiate an outbreak (Homer-Dixon, 1999, Kramer et al., 2013, Maas et al., 2013).

It is important to note that conflict and cooperation are not mutually exclusive. On the contrary, they often coexist. Moving away from the conceptualisations presenting natural resources as a conflict irritant, a new wave of researchers have begun envisioning environmental change and degradation as an incentive for cooperation rather than for violence. The term, environmental peacemaking was first adopted by Conca and Dabelko (2002) and it is still used, but many authors refer to ‘environmental peacebuilding’ or use the terms interchangeably (for instance: Carius, 2007, Conca and Dabelko, 2002, FoEME, 2008). The concept of peacebuilding was first introduced by Galtung (1976) as one of three approaches to peace, together with peacekeeping and peacemaking. Peacebuilding can refer to a variety of initiatives that contribute to sustainable peace by transforming relationships between former conflict parties into cooperation partners, in an attempt to build a long-term and solid basis for comprehensive peace (Lederach, 1997). In peace studies, peacebuilding thus refers to a comprehensive and inclusive approach to addressing the roots of violent conflicts. This is in contrast to peacekeeping, which merely refers to activities that are aimed at maintaining a ceasefire, and peacemaking, which corresponds to peace enforcement through diplomatic and political negotiation or military means. Peacemaking is thus limited to measures that are aimed at de-escalating a conflict, while peacebuilding refers to a broader set of actions which are

implemented mostly in the post-conflict phase in order to create the conditions for sustainable peace and reconciliation. Examples of peacemaking tools include diplomatic negotiations and peace agreements, while peacebuilding consists of a wide range of activities which can include disarmament, demobilisation and reintegration of ex-combatants into civil society, as well as providing support to state institutions and transitional justice programmes to redress human rights abuses that are committed during a conflict.

Since its emergence, environmental peacebuilding has evolved into a broader framework bridging mainly environment and peace studies. However, the concept, its process and functioning are still relatively poorly defined in the literature. As aforementioned, both the “environment” and “peacebuilding” are complex, multidimensional terms. This complexity increases when combined within the concept of “environmental peacebuilding”. The slippery nature of concepts such as the environment, conflict, peace and peacebuilding makes combining these terms a particularly challenging task.

This Discussion Paper aims to unravel this complexity and provides an overview of the current state of research on this issue. It does so by investigating how the different concepts that are articulated around ‘environmental cooperation’ are understood and used in the literature, in order to present different approaches to environmental peacebuilding and also to review the existing conceptualisations of the linkages between the biophysical environment and peacebuilding to promote a move towards a common understanding of environmental peacebuilding. This advancement of understanding allows the authors of the current paper to further explore the linkage between humans, natural resources, violent conflicts and peace. This paper starts by laying out the interrelations between natural resources and conflicts. It then reviews the evolution of environmental cooperation into a conflict transformation instrument. The potential interactions between the environment, conflicts, and peace are illustrated by examples from selected cases. Building on this, this paper moves on to discuss how these different approaches can be articulated into a comprehensive understanding of the environmental peacebuilding framework. A central aspect of this paper is that a lack of consensus regarding the terms used and the effectiveness of environmental peacebuilding is identified. More systematic research is therefore needed in order to understand if and how environmental cooperation can effectively contribute to peace, and if so, under what circumstances and conditions.

## **2. From environmental conflict to environmental peace**

The biophysical environment, natural resources, and human actions intermingle in a number of ways. During a violent conflict, natural resources can impact on (and be impacted by) the human violence, acting either as an irritant or as a unifier. The biophysical environment and natural resources can, for instance, cause or contribute to a dispute, suffer from the violence as a direct or indirect target, or mitigate tensions between conflict parties. These interactions with the biophysical environment are determined by the inherent characteristics of a conflict and the local context, but also by the nature of the natural resources involved. The next section of this paper describes the different roles which the biophysical environment and natural resources play in violent conflicts, before introducing their potential contribution to peacebuilding.

## 2.1. Conflicts over natural resources

The understanding of conflict and peace is challenged in a changing, globalised world, where the types and shapes of conflicts are mutating (Wolf, 2007). There are several degrees and types of conflicts, whether violent or non-violent, internal or transboundary, in which a multiplicity of actors can be involved, each with their own interests. Galtung (1967), for example, distinguishes between positive and negative definitions of peace. While negative peace refers to the absence of conflict, positive peace goes beyond that, and calls for the establishment of a harmonious and equitable society. Violence can range from direct (verbal or physical) to structural (indirect) violence as an institutionalised form of discrimination. The mere absence of direct violence is thus not synonymous with peace. Provided that they are managed in a non-violent way, conflicts can even have positive outcomes, triggering needed changes and evolution (Galtung, 1967). In this regard, we distinguish several arguments, concerning the possible interactions between violence and natural resources, that are present in the body of literature.

A first possibility is that natural resources *contribute to the escalation of events* into a violent conflict. Although the biophysical environment is rarely the sole cause of a conflict, natural resources can indirectly contribute to the escalation of violence or be part of a wider political strategy. Natural resources have indeed been shown to play a key role in determining and shaping conflict and its development. When coupled with political instability, scarce natural resources can course conflicts over access to, and ownership of, shared transboundary resources between competing states, for example (Giordano et al., 2005). In other cases, it is not natural resources themselves which lead to an escalation of the violence, but their political use by state or non-state actors. For example, Le Billon (2001) argues that the process of “territorialisation of sovereignty around valuable resource areas” can constitute a *de facto* annexation of valuable territory and natural resources as part of a deliberate strategy.

A second possibility is that the biophysical environment becomes a *direct or indirect target* during violent conflicts, either as a weapon, victim or as a beneficiary of conflict. It can, for instance, be “weaponised” and used by one of the conflict parties as a direct means to wield violence against the opposing party. The Israeli-Palestinian conflict is a well-known example where water scarcity plays a role in a conflict and has been used by different parties as a means of applying pressure. Gleick and Heberger (2014), for instance, mention the 2011 destruction of water tanks, pumps and wells by the Israeli army in several Palestinian villages.<sup>1</sup>

The biophysical environment also suffers indirectly from the conflict. Cases of acute pollution have, for instance, been noted as a consequence of the Israeli settlements in the West Bank. Sewage from Israeli settlers has been dumped on agricultural lands, while private companies delocalised their activities to the West Bank, thereby, escaping Israeli environmental and labour laws and constituting a high risk of pollution (HRW, 2016, Gleick and Heberger, 2014).

A third possibility is that conflicts (or rather, their consequences and negotiated outcomes) can have *beneficial effects on the environment*, with an example such as biodiversity conservation by creating “*de facto* ecological havens in demilitarized zones” (Jarraud and Lordos, 2012). The Korean Demilitarized Zone (DMZ) and the Binational Red Sea Marine Peace Park (RSMPP) between Israel and Jordan illustrate this (Hanson et al., 2009, Ali, 2007). These zones, referred to as peace parks, can in turn be used as conflict resolution tools (Ali, 2007). New research by Lelieveld et al. (2015) also establishes a correlation between armed conflicts and regional air quality improvement in the Middle

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<sup>1</sup> The authors cite the cases of Amniyr, Al-Nasaryah, Al-Akrabanyah, and Beit Hassan.



East. Indeed, the authors note a decrease in nitrogen dioxide emissions since 2010 as a result of the Iraqi and Syrian crises (Lelieveld et al., 2015).

The linkages between the biophysical environment and conflicts are also determined by the types of natural resources involved. Different resources seem to have different effects on the development of a conflict and/or cooperation. However, no clear typology exists to conceptualise these interactions between particular natural resources and violent conflicts. Gleick (2014) conceived a typology to classify water-related conflicts,<sup>2</sup> but these categories are generally ever-evolving, adding conceptual confusion to the existing body of environmental peacebuilding framework literature. The following table, created by Ross (2003) and adapted by Matthew et al. (2009), summarises civil wars that are linked to natural resources since the end of the Second World War.

Country	Duration	Resources
Afghanistan	1978-2001	Gems, opium
Angola	1975-2002	Oil, diamonds
Burma	1949-	Timber, tin, gems, opium
Cambodia	1978-1997	Timber, gems
Colombia	1984-	Oil, gold, coca, timber, emeralds
Congo, Dem Rep. of	1996-1998 1998-2003 2003-2008	Copper, coltan, diamonds, gold, cobalt, timber, tin
Congo, Rep. of	1997-	Oil
Côte d'Ivoire	2002-2007	Diamonds, cocoa, cotton
Indonesia – Aceh	1975-2006	Timber, natural gas
Indonesia – West Papua	1969-	Copper, gold, timber
Liberia	1989-2003	Timber, diamonds, iron, palm oil, cocoa, coffee, rubber, gold
Nepal	1996-2007	Yarsa gumba (fungus)
PNG – Bougainville	1989-1998	Copper, gold
Peru	1980-1995	Coca
Senegal – Casamance	1982-	Timber, cashew nuts
Sierra Leone	1991-2000	Diamonds
Sudan	1983-	Oil

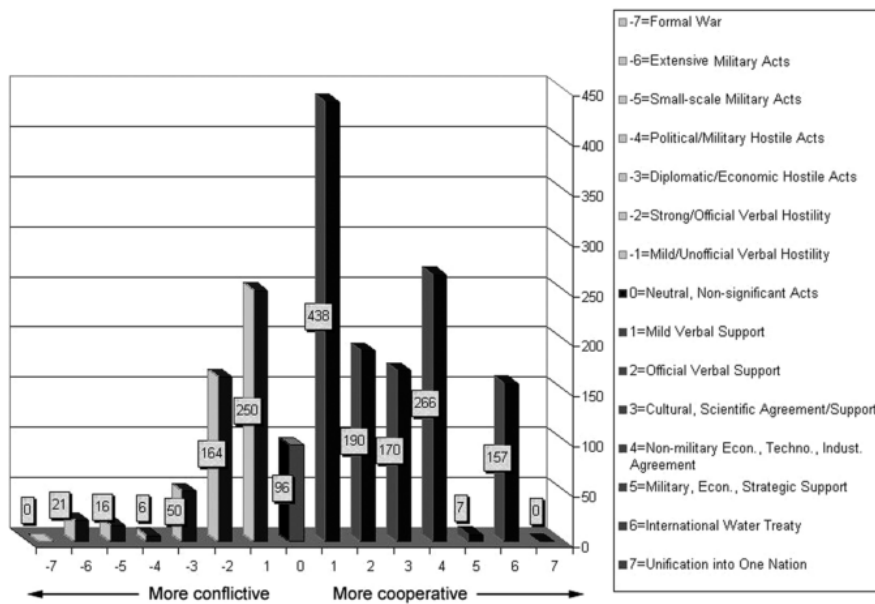
**Table 1: Table of recent civil wars and internal unrest fuelled by natural resources (Matthew et al., 2009).**

Table 1 shows how high financial value natural resources are commonly put forward as a cause of conflict. The natural resources which are the most cited as conflict irritants in Table 1 are metals (such as gold, copper, tin, cobalt or iron) or minerals, timber, gemstones (especially diamonds), and consumption goods (mainly cocoa and coffee), as well as oil and other fuels. Depending on the kind of natural resources involved, the types and levels of violence observed in conflicts are variable. Le Billon (2001) differentiates between natural resources involving extraction and production, and

<sup>2</sup> The current categories are: Military tool or target, terrorism and development disputes.

argues that extracted resources (e.g. minerals) tend to lead to physical violence over territorial control, while produced resources are more likely to cause structural forms of violence.

On the contrary, other environmental issues, such as transboundary waters, are commonly used to underline the cooperation potential of shared natural resources. Regarding transboundary river basins, Wolf (2007) demonstrates that cooperative events are far more common than disputes. Out of a total of 1,831 water-related events over the past fifty years, 67.07% were identified as cooperative events, against only 27.69% that were identified as conflictive events (see Figure 1). This observation is closely related to the fact that cooperation, in the case of shared water resources, is often more cost-efficient for all parties than a prolonged conflict (Wolf, 2007).



**Figure 1:** Number of events by Basins at Risk by Conflict/Cooperation Scale (Wolf, 2007).

A recent addition to these diverse types of relations between the biophysical environment and conflict is climate change (Matthew et al., 2009, Gleditsch, 2012, Brown et al., 2007, Floyd, 2008). A general trend among researchers has been to present climate change as a security issue that is capable of escalating latent conflicts into violent outbreaks – for instance, by threatening people’s livelihoods and increasing tensions between groups, such as farmers and transhumant pastoralists in Africa (Burke et al., 2009). New research indicates, however, that there is a lack of data to support this argument. Focusing on Africa, Buhaug (2010), for example, rejects the argument which associates rising temperatures to the likelihood of civil wars. Using alternative models and data, his findings in fact contradict the “scarcity-induced conflicts” hypothesis (Buhaug, 2010). Although the hypothesis of climate change-induced conflicts remains popular and has, as such, not been disproven, as illustrated by new research arguing that the Syrian conflict was partially caused by a preceding drought (Kelley et al., 2015), the environmental cooperation hypothesis has increasingly gained momentum as a complementary approach to explain the linkages between natural resources and conflicts over a period of more than a decade.

## 2.2. Natural resources as potential peace vectors

Although comprehensive research on the issue remains limited, an evolving trend is observed in the literature since the beginning of the 21<sup>st</sup> century, focusing on the biophysical environment as a potential conflict transformation and resolution tool, rather than a conflict irritant (Pachauri et al., 2009, Fröhlich, 2010). Challenging the existing theories of “environmental wars”, the research not only highlights the fact that conflict and cooperation can coexist, but also insists on the transformative potential of environmental cooperation (Giordano et al., 2005). Indeed, the complex, uncertain, and long-term nature of environmental issues seems to create “functional interdependencies” between trans-border communities that can, as above-mentioned, bring them to conflict, but also to dialogue and eventually cooperation (Conca and Dabelko, 2002).

The “environmental peacemaking” framework was initially adopted by Conca and Dabelko (2002). This approach is the most prevalent in the scientific literature, although the paradigm has somewhat mutated since then, and is also commonly referred to as environmental peacebuilding, peace ecology, or environmental peace. Conca and Dabelko (2002) identify two main pathways for environmental peacemaking. First, the biophysical environment can be used to improve intergovernmental relations and create linkages between communities across political borders. Second, it can create interdependence between these transboundary communities and potentially contribute to forging a regional identity. Beyond stabilising interstate relations, environmental cooperation can thus contribute to fostering trans-societal relations and lay the ground for a “shared collective identity” (Conca, 2002) or a “shared social identity” (Zikos et al., 2015) between former or potential conflict parties.

Following this initial research, the environmental peacemaking framework has gradually evolved from a conflict resolution tool to a more comprehensive, transformative peacebuilding approach. Environmental peacemaking activities are commonly classified into three categories (Maas et al., 2013, Conca et al., 2005, Carius, 2007).

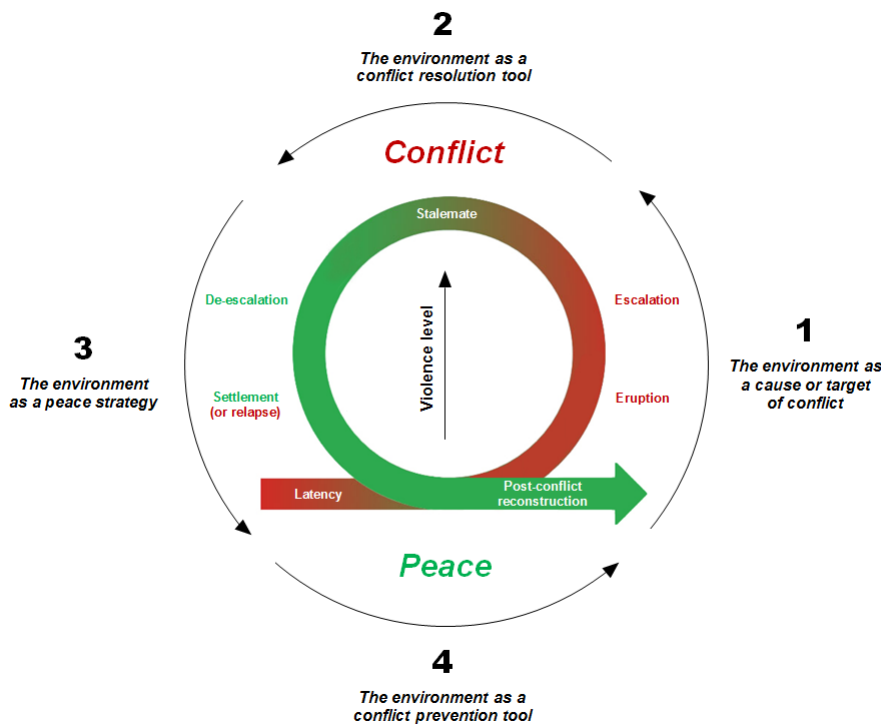
The first and most direct type of environmental peacemaking consists of activities that are aimed at preventing environmental conflicts. As pointed out by the scarcity school, when natural resources are not sufficient for all groups exploiting them, tensions and violent conflicts might erupt. Therefore, limiting human pressure on these resources, coupled with strengthening of the institutions in charge of their management, is one way to alleviate these pressures and the associated conflict risks (Carius, 2007, Conca et al., 2005). This is especially true in situations of power asymmetry between groups, where access to natural resources and their economic benefits is determined by ethnic, economic or other socio-cultural differentiations (Zeitoun, 2008, Conca et al., 2005, Carius, 2007).

The second approach aims at building “peace through cooperative responses to shared environmental challenges” (Conca et al., 2005). This approach tries to bring conflict parties together to stimulate dialogue through environmental cooperation, in order to foster trust between former conflict parties, paving the way for conflict de-escalation, political cooperation, social transformation, and eventually reconciliation (Carius, 2007). Through regular interaction and dialogue, competing parties gradually evolve from a narrative of resource scarcity that is characterised by uncertainty and security concerns (Ide and Scheffran, 2008), in order to identify sustainable, win-win solutions to shared environmental problems – such as transboundary pollution. These dialogues and collaborations can, in turn, contribute to restoring trust between former conflict parties, and lay the foundations for durable reconciliation (Carius, 2007, Wolf, 2007, Matthew et al., 2009, Jensen and Lonergan, 2013). As an example, Ali (2007) cites the case of Darfur, where an ethnic-political conflict could be deescalated through the common challenge of desertification. The benefits of

environmental cooperation are of a special nature, making it seem that environmental peacebuilding has the potential to bring together conflict parties even while violence is ongoing. Water negotiations between Israel and Jordan illustrate this (Wolf et al., 2005, Jägerskog, 2013). Another example of environmental cooperation as a tool for dialogue is the 1960 Indus Waters Treaty and subsequent creation of an Indus Commission, which survived several wars between India and Pakistan (Wolf et al., 2005, Swain, 2002).

Finally, dialogue on environmental issues can lay the foundations for future cooperation in other domains. It does so by creating a climate of cooperation and political cooperation and negotiations, which can result in institutionalised forms of interactions between conflicting parties (Conca and Dabelko, 2002, Carius, 2007). Environmental cooperation can thus create opportunities for interstate bargaining and can lead the way to political and institutional forms of cooperation and, in turn, “lasting peace by promoting conditions for sustainable development” (Conca et al., 2005, Carius, 2007). Ultimately, by treating the root-causes of conflicts, environmental peacebuilding has the potential to deter future conflicts between competing parties, rendering the use of violence as unimaginable (Conca and Dabelko, 2002).

In sum, environmental issues present multiple opportunities to promote dialogue and cooperation between former, current, or possible future conflict parties. The critical nature of environmental problems for human survival is key to this potential and renders environmental cooperation an important potential component of peacebuilding (FoEME, 2008). Natural resources that are shared by conflicting parties are, thus, a good entry point for dialogue and negotiation, which can later extend beyond environmental issues, laying the roots for peace and reconciliation. This process is captured in Figure 2.



**Figure 2:** Environmental peacebuilding and the conflict cycle (own figure).

Despite this, there is no unified model or definition of the concept, and little empirical research on the topic has been carried out. There is, for example, a lack of studies which assess the effect of environmental cooperation, and the quantitative data which are available sometimes show contradictory findings on environmental issues and their correlation with either conflict or peace (Ide and Scheffran, 2008).

### **3. Discussion**

Environmental cooperation is identified by an increasing number of researchers as a potential tool for peacebuilding. However, as aforementioned, there is a lack of empirical evidence to corroborate the existence of a direct relationship between the biophysical environment and either conflict or peace. Indeed, environmental peacebuilding is not a “coherent theoretical school”, nor a “distinct set of practical activities”, but is instead “an umbrella term that covers a wide range of aspects on the relationships between environment, conflict, and peace” (Maas et al., 2013). The difficulty to test this link between environmental issues and peacebuilding is partly due to the absence of adequate indicators to measure environmental cooperation (Conca and Dabelko, 2002). Another difficulty is the fact that several elements of this emerging framework are still unclear. The upcoming discussion focuses on three particular aspects of the environmental peacebuilding framework, in order to move it forward: Firstly, the terminology of the concept is clarified, arguing that the interchangeable use of peacemaking and peacebuilding is problematic because these two terms refer to two distinct set of objectives and activities. Secondly, the specific qualities of environmental cooperation as a peacebuilding tool, in contrast to other domains, are discussed. Thirdly, the main actors which are implicated in environmental peacebuilding activities and their respective roles as reconciliation agents are debated.

#### **3.1. Environmental peacemaking or peacebuilding?**

Many authors use environmental peacemaking and peacebuilding interchangeably. This is partly because the timeframe to which each of these terms refers is unclear. While Carius (2007) notes that environmental cooperation is predominantly implemented during periods of low violence intensity, there is no clear-cut separation between conflict and peace, especially in the case of protracted conflicts where periods of acute violence alternate with latent phases. This might explain the confusion between peacemaking, which is traditionally seen as activities that are implemented to end a conflict, and post-conflict peacebuilding.

However, there is an important difference in the objectives that are pursued by peacemaking and peacebuilding, respectively, as well as the types of activities they imply. The two notions are thus not interchangeable. According to Galtung (1996), the central aim of peacebuilding is not to eliminate all forms of conflict, because conflict is a natural part of life. Instead, peacebuilding aims at creating the conditions under which conflicts can be solved non-violently, a state referred to by Galtung as “positive peace”. As such, positive peace goes beyond the absence of conflict, and is defined as the capacity to resolve conflicts in a non-violent way (Galtung, 1996). While peacemaking aims at deescalating the violence level (negative peace), peacebuilding aims to secure lasting (positive) peace. In other words, the objective pursued by peacemaking is the absence of violent conflict, while that of peacebuilding is sustainable peace and reconciliation between former conflict parties. This is achieved by solving the root causes of the violence. Hence, conflicts and change will continue to occur, but will be dealt with in a peaceful and cooperative way. What differentiates environmental

peacebuilding from environmental peacemaking is, thus, not the conflict stage at which they both occur, but rather their ultimate objectives and the nature of the activities which are implemented in order to achieve them.

We have seen that conflicts are complex, multifaceted processes, and there is a need for a more comprehensive approach to conflict transformation than that which is envisioned by the environmental peacemaking framework. The definition of environmental peacemaking as “a continuum ranging from the absence of violent conflict to the unimaginability of violent conflict” (Conca and Dabelko, 2002) should thus be nuanced, as the second part refers to peacebuilding as we understand it. This does not mean that environmental peacemaking does not exist, but simply that it refers to a more limited framework than that of peacebuilding. When environmental cooperation is used as a means to foster trust and dialogue between communities, thereby deterring future conflicts and impacting sustainable development, we argue that this corresponds to environmental peacebuilding. Accordingly, environmental peacebuilding measures should be implemented when relevant: in the pre-conflict phase to prevent an escalation of latent violence, during a conflict to support a smooth transition to peace, and in the post-conflict phase to ensure sustainable peace (Conca et al., 2005).

### **3.2. Why the environment?**

Natural resources are just one of many other issues around which peacebuilding can be articulated. Other issues include, for example, business initiatives, justice, or health. Nonetheless, the biophysical environment has distinctive qualities which potentially strengthen peacebuilding efforts and offers a broad range of types of actions. There is indeed a variety of activities that can bring different communities to collaborate non-violently using the natural environment. Environmental cooperation can, for instance, take the shape of transboundary water agreements, joint research projects, education, or peace parks which promote biodiversity conservation and eco-tourism. It appears from the literature, however, that some types of natural resources are more likely to result in cooperation than others, and that some types of cooperation are easier to implement than others. Depending on the local needs and socio-economic context, the environment and natural resources can thus be a more or less suited peacebuilding tool. However, more detailed quantitative and qualitative data are needed to further investigate which type of environmental cooperation is best suited and in what contexts.

One of the main assets of the biophysical environment as a cooperation incentive is the interdependence created by transboundary natural resources that are shared between actors at various spatial scales, from local communities to nation-states and global organisations. Indeed, environmental problems (and benefits) do not stop at political borders (Carius, 2007). Instead, natural resources spread across territories, creating “bioregions” (Kyrrou, 2007). This interdependence can exacerbate existing tensions, but also creates cooperation opportunities. It calls for cross-border regional forms of management (FoEME, 2008).

Moreover, environmental cooperation is often more cost-effective than conflict for all parties (Kramer et al., 2013, Wolf, 2007). Regarding the latter, Wolf et al. (2005) note that a main reason why riparian countries are pushed towards negotiation instead of conflict is “to ensure access to this essential resource and its economic and social benefits”. The interdependencies created by shared natural resources, coupled with the cost-effectiveness of cooperation over conflict, thus create an incentive for cooperation. The ability to find arrangements to manage shared natural resources can

even provide new income sources, supporting post-conflict economic recovery and the peacebuilding process (Matthew et al., 2009). Nonetheless, it has also been noted that environmental cooperation can contribute to durable peace, regardless of whether the environment caused the conflict in the first place (Ali, 2007). The environmental peacebuilding framework can also be seen as an entry point for broader cooperation in other areas, ultimately restoring peaceful relationships (Matthew et al., 2009, Amster, 2015). In regard to this, Maas, Carius, and Wittich (2013) claim that “environmental issues are often lower on the political agenda” and may as such “provide a good entry point for dialogue and cooperation”.

While cooperation often presents the best chances to implement equitable solutions to apolitical environmental issues, we have seen that critical natural resources, such as water, are commonly securitised by decision-makers and other stakeholders. This fosters distrust and division between competing groups, leading to unilateral, detrimental decisions to perceived scarcity threats and ultimately increasing tensions and conflict escalation between these groups. Alternatively, Zikos et al. (2015) suggest switching from the biophysical environment, as defined by political borders, to socio-ecological systems as the referent object of securitisation, in order to envision resource scarcity as a common challenge. Considering resource scarcity as a shared concern that transcends political boundaries is indeed likely to lead to mutually beneficial solutions to shared environmental problems, and to lay the foundations for future cooperation in other domains, based on a shared social identity. Hence, the focus is not so much on the environment itself, but on the linkages between social and ecological sub-systems which present an opportunity for environmental cooperation and broader peacebuilding, as well as the subsequent institutions which regulate the interactions between these two sub-systems (Zikos et al., 2015). The following section focuses on the role of the different actors that will potentially be interacting within such socio-ecological systems.

### **3.3. Environmental peacebuilding, by whom and for whom?**

As aforementioned, the concept of environmental peacebuilding does not focus on the biophysical environment and natural resources as such, but rather emphasises the relationships between natural resources and human beings, as well as the cooperation that can emanate from these shared resources. Indeed, nature is not just “out there” as a wilderness but is often constitutive of the cultural identities of communities, and as such is deeply intertwined with human activities, making it a potentially highly politicised issue which opens potential for conflict, but also for peacebuilding. Hence, the human-environment nexus of environmental peacebuilding and all the stakeholders involved in this nexus should be considered when exploring, analysing, and/or applying the framework.

Lederach (1997) identifies three main peacebuilding actors: “top leadership” in charge of high-level negotiations, “middle-range leadership” which serves as a link between top leadership and the local level, and “grassroots leadership” such as traditional leaders or local community developers. All three approaches are complementary (Lederach, 1997) and international actors also play a key role in promoting environmental peacebuilding and sustainable development (Conca, 2002, Carius, 2007, Varisco, 2009). This pyramidal model of conflict transformation emphasises bottom-up processes (Ramsbotham et al., 2011), and many scholars engaged in environmental peacebuilding have argued that environmental peacebuilding should be based on a participatory approach which includes civil society representatives at all stages of environmental peacebuilding (Conca and Dabelko, 2002,

Jarraud and Lordos, 2012). Failing to do so could result in the exclusion of some groups, creating additional conflicts or tensions.

Environmental cooperation thus represents an opportunity to stimulate dialogue and confidence-building between conflict parties on environmental issues by creating a space for “regular interaction between academia and civil society actors” and systematic negotiations between actors that are found at different scales (Carius, 2007). Envisioning reconciliation as one of the main objectives of environmental peacebuilding, Maas et al. (2013) highlight the importance of creating such “strategic social spaces” in which conflict parties can exchange knowledge and more on shared problems, needs and interests, while deconstructing mutual stereotypes. Beyond that, the interdependencies created by shared environmental challenges can potentially contribute to uniting opposing parties under a collective social identity (Conca, 2002, Zikos et al., 2015), thereby, preventing future conflicts. As such, these grassroots actors can be seen as “desecuritisation” actors that are capable of restoring relations between conflicting parties (Coskun, 2009).

Cooperation, when limited to grassroots initiatives and scientific or technical collaboration is, however, not sufficient because these initiatives need to develop into institutionalised forms of cooperation in order to have a sustainable impact on peacebuilding. Indeed, Giordano , Giordano and Wolf et al. (2005) point out that, in the absence of competent and functioning institutional forms dealing with shared resources, conflicts are more likely to arise. Yet, most environmental cooperation initiatives are not formally institutionalised, and researchers often fail to identify which institutional forms are best suited to ensure peace and in which context. Transboundary agreements on shared natural resources are an often-used example of institutionalised environmental cooperation, which is understood in the literature and among many stakeholders as a positive indicator of political will to cooperate on environmental issues. Political cooperation, based on pre-existing environmental cooperation initiatives, has similarly been shown in a number of cases to be a successful way to restore dialogue between states, such as shown in the case of water negotiations between Jordan and Israel, leading up to the conclusion of a peace agreement between both countries in 1994. While, for Conca & Dabelko (2002), a central objective of environmental peacebuilding is to create “habits of cooperation”, subsequently stimulating institutionalised forms of interactions, for Carius (2007) a main shortcoming of environmental peacebuilding is “its inability to transform environmental cooperation into broader forms of political cooperation and initiate a social and political dialogue” beyond environmental issues when “confronted with foreign and security considerations”. It is thus important, when considering, describing and implementing environmental peacebuilding, to not only understand what this term implies but also to ensure an institutional process, including a transition from, for example, technical to political cooperation. Only by doing so, can environmental cooperation activities lead to policymaking and institutional cooperation (Conca and Dabelko, 2002, Carius, 2007).

#### **4. Conclusion**

The concept of environmental peacebuilding has gained momentum over the last decade. Challenging the common view of the biophysical environment and natural resources as a trigger of conflicts, scholars have begun to explore the idea of environmental peacebuilding. Highlighting the multiple dimensions of conflict, violence, and peace, we reviewed the linkage between environmental changes and violent conflicts. Over the past decades, the conceptualisation of this relationship has evolved in the scientific literature, from environmental conflict to environmental



cooperation, peacemaking and peacebuilding. Finally, key findings and remaining gaps were identified, in order to show the full potential of environmental cooperation as a peacebuilding tool. Indeed, the conditions of its success in contexts that are often very different demand further analysis and systematisation. In this regard, three points were given special attention: what, when, and who is (or who should be) involved in environmental peacebuilding. The concepts of environmental peacemaking and peacebuilding were nuanced, noting that both can coexist but refer to different approaches and methods. We argued that what differentiates these two approaches is not when they start, but rather the pursued objective: Peacemaking aims at ending a conflict while peacebuilding creates the conditions for sustainable peace. Due to the transboundary (or rather trans-community) ecological interdependences it creates, it was shown that the natural environment is a particularly suited peacebuilding tool, because of its potential to encourage and facilitate cooperation between conflict parties. Finally, the institutional aspects of environmental peacebuilding and the need to determine adequate and tailored institutional forms to ensure a durable impact on social cohesion were discussed. The role of grassroots leadership and community initiatives were also emphasised, advocating for a participatory and inclusive approach to environmental peacebuilding.

Within the literature review upon which this paper is based, it is noteworthy that there is a disparity and lack of consensus regarding the concept of environmental peacebuilding and how it is to be applied. A main challenge is to demonstrate the effectivity of environmental peacebuilding, and to identify the circumstances under which it can be a successful conflict resolution tool. While several case studies explore the linkages between the environment, conflicts, and peace, more systematic research is needed to understand if and how environmental cooperation can contribute to peace. Indeed, little empirical evidence substantiates the causal relationship between environmental interdependency and either violent conflicts on the one hand and cooperation and peace on the other hand. Although recent research strongly suggests that shared natural resources can effectively contribute to building sustainable peace, the question of whether and how this can be effected remains open.

**Abbreviations**

DMZ	Demilitarized Zone
ECSP	Environmental Change and Security Program
FoEME	Friends of the Earth Middle East
HRW	Human Rights Watch
RSMPP	Red Sea Marine Peace Park
UN	United Nations
UNEP	United Nations Environment Programme

## Annex: Definitions of environmental peacemaking and peacebuilding by key authors

Author/ Source	Term(s) used	What? How does each author use these terms and differentiates them from others?	Why the environment?	When are these measures best implemented?	Who? Who are the main actors involved and what is their role?	How? What are the modalities prescribed by the different authors?
Galtung (1996)	Differentiates peace-making and peace-building	Peacebuilding embeds "the actors in a new formation" and transforms "attitudes and assumptions"; Peacebuilding overcomes "the contradiction at the root of the conflict formation".	N.A.	"The negative and positive purposes of conflict intervention can be served" at any time.	Anybody (State, civil society, corporations or individuals)	"By entering into a communication process with the actors in the conflict formation; expanding that formation".
Lederach (1997)	Peacebuilding	Peacebuilding "is understood as a comprehensive concept that encompasses, generates, and sustains the full array of processes, approaches, and stages needed to transform conflict toward more sustainable, peaceful relationships".	N.A.	"The process of building peace must rely on and operate within a framework and a time frame defined by sustainable transformation".	"A sustainable transformative approach suggests that the key lies in the relationship of the involved parties, with all that the term encompasses at the psychological, spiritual, social, economic, political and military levels".	It "involves a wide range of activities that both precede and follow formal peace accords. Metaphorically, peace is seen not merely as a stage in time or a condition. It is a dynamic social construct".
United Nations	Differentiates peacemaking from post-conflict peace-building	Post-conflict peace-building refers to an "action to identify and support structures which will tend to strengthen and solidify peace in order to avoid a relapse into conflict"; Peacemaking is defined as "action to bring hostile parties to agreement, essentially through such peaceful means as those foreseen in Chapter VI of the Charter of the United Nations" (UN, 1992) (Secretary-General, 1992).	N.A.	Traditionally, "most peacebuilding happens once conflict (defined as major, large-scale violence) has ended" (UN, 2010), and more precisely during the first two years following the end of a conflict (UN, 2009), but this approach has become more flexible.	Many actors can contribute to post-conflict peacebuilding, such as humanitarian and development agencies, peacekeeping operations and Special Political Missions (UN, 2010).	"National and international efforts in the early post-conflict period should focus on meeting the most urgent and important peacebuilding objectives: establishing security, building confidence in a political process, delivering initial peace dividends and expanding core national capacity." (UN, 2009).

Author/ Source	Term(s) used	What? How does each author use these terms and differentiates them from others?	Why the environment?	When are these measures best implemented?	Who? Who are the main actors involved and what is their role?	How? What are the modalities prescribed by the different authors?
Conca & Dabelko (2002)	Environmental peacemaking	"There may be useful catalytic roles for environmental cooperation in peacemaking, which we define as movement along a continuum ranging from the absence of violent conflict to the unimaginability of violent conflict."	Their " interest in environmental peacemaking goes beyond simply forestalling environmentally induced conflict" (Conca & Dabelko, 2002, p. 9).	Institutions play a key role in Conca & Dabelko's approach to environmental peacemaking.	The authors identify two pathways: one is "using environmental initiatives to generate an improved climate of intergovernmental relations; the other is rooted in peace-enhancing cross-border societal linkages that may result from environmental cooperation " .	They "are seeking to pinpoint the cooperative triggers of peace that shared environmental problems might make available" rather than the "environmental triggers of conflict".
Maas, Carius, Wittich (2013)	Environmental peace-building	"Environmental peace-building [...] and many other terms – environmental peace-making, ecological peace-building, environmental diplomacy – have emerged over the years. [It] is neither a coherent theoretical school nor a concrete and distinct set of practical activities [but] an umbrella term that covers a wide range of aspects [focusing] on the relationships between environment, conflict, and peace. [There is an] Indirect linkage between conflict and the environment. " .	"environmental issues are often lower on the political agenda than other issue areas and thus are less visible, environmental issues may provide a good entry point for dialogue and cooperation – even between parties to a conflict where environmental variables do not play a role in a given conflict." .	N.A.	N.A.	The authors identify three dimensions of environmental peacebuilding: addressing environmental causes of conflict, environmental cooperation as a platform for dialogue, "a social space in which representatives of conflict parties can meet, discuss issues and cooperate", and sustainable development as a contribution to durable peace, such as "changing existing institutions, habits and structures" .

Author/ Source	Term(s) used	What? How does each author use these terms and differentiates them from others?	Why the environment?	When are these measures best implemented?	Who? Who are the main actors involved and what is their role?	How? What are the modalities prescribed by the different authors?
Carius (2007)	Environmental peacebuilding and peacemaking used interchangeably	Three types of "ecological peace initiatives" are identified: "activities to prevent conflicts directly related to the environment; attempts to initiate and sustain a dialogue on trans-boundary environmental cooperation between parties to a conflict; and initiatives that seek a lasting peace by promoting conditions for sustainable development." He highlights "the inability of environmental peacemaking" to transform environmental cooperation into broader forms of political cooperation and initiate a social and political dialogue going beyond environmental aspects."	Environmental problems do not stop at political borders, the environment has unique qualities for peacebuilding (Carius, 2007, p. 63).	Carius does not give a timeframe but identifies long-term impact as a challenge and notes that "cooperative environmental projects tend to be initiated when conflicts are not intense" (Carius, 2007, p. 71).	There is a "need to embed (such complex initiatives) in larger economic, political and institutional frameworks." "we lack sufficient knowledge and appropriate conditions to discuss their impact" Need for "a systematic and comparative analysis of previous case studies in order to engage in a constructive dialogue with policy-makers to make environmental peacemaking more effective" (Carius, 2007, p. 72).	"The first category is usually dealt with by reducing the pressure on the resources and institutional mechanisms, the second by starting dialogues and establishing cooperation on shared environmental challenges, and the third one by reaching long-term sustainable solutions and management regimes."
Amster (2015)	Peace ecology	Peace ecology "contemplates the ways in which the same environmental processes that often drive conflict [...] can also become profound opportunities for peaceful engagement" [...] "the overarching premise of peace ecology is interconnection".	N.A.	N.A.	"The relevant actors on the world stage include multinational corporations and INGOS, nation-states and politicians, regional associations, and CBOs - as well as individuals. (...) Whether local initiatives in themselves will be sufficient to stem the tide of pandemic conflict and degradation is not clear, but it is hard to imagine change occurring at wider scales without them" [...] "the path to peace and sustainability lies in individuals and communities".	Amster (2015) proposes to "turn theory into practice" and "crisis into opportunity" and highlights the spillover effects of environmental cooperation to other domains.

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