Turning Problems into Solutions: Environmental Peacebuilding in Sub-Saharan Africa

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Introduction

Competition over scare resources, desertification and food insecurity are gaining increasing attention when researching violent conflict. However, they are often overlooked as a solution to the problems they create. To overcome conflicts where environmental factors exacerbate tensions, environmental peacebuilding (EPB) has been proposed as a way to turn problems into solutions (Johnson, Rodríguez & Hoyos, 2020). EPB posits that conflicts are often linked to environmental stressors, such as resource scarcity or climate disasters, and aims to mitigate these conflicts by building climate resilience and fostering cooperation. It further indicates the shift away from traditional liberal peacebuilding to the more adaptive peacebuilding strategies which have emerged in the past few decades under United Nations (UN) leadership (de Coning, 2018). It also included similar strategies reflected in local approaches to peacebuilding, such as those developed by Autesserre (2021).

The literature on EPB is for now characterised by practical, on the ground knowledge, with scholarship mainly focusing on targeted case studies. Therefore, there has been little effort to analyse the broader trends of EPB. Moreover, existing case studies mainly reflect a narrower understanding of environment, focusing on the management of economically salient natural resources, such as oil and diamonds, which have been associated with rebel funding and civil war. To address the concerns surrounding EPB and highlighting best practices, the question assessed in this paper is: *How is EPB included in current peace processes and what are challenges to its implementation?*

To answer this question, the paper will conduct a mixed methods study, consisting of a quantitative analysis of environmental provisions in peace agreement, followed by a qualitative small-n analysis of the 17 cases with the most substantial environmental provisions. Subsequently, the study will conduct a single case study on Sudan, to analyse how original peace agreements are implemented during the peacebuilding process. This complementary investigation will allow insight into how wishes on paper are not always reflected on the ground.

From this analysis, several findings emerge. Not only is inclusion in peace agreements limited to few provisions, but these often vague, weak, and unidimensional. Moreover, even when provisions are concrete and multi-facetted, implementation gaps and problems with policy design curtail progress, as is highlighted by the case of Sudan.

The paper is structured as follows. First, I will define EPB, natural resources and other mechanisms integral to the analysis. Secondly, I will conduct a literature review to highlight major findings in the EPB scholarship, as well as point out the potential limitations of the research thus far. Then, the multi-part analysis will link the on-paper agreements to on the ground situations, which will conclude by summarising the lessons learned and make way for recommendations on how to move forward in integrating the environment in peacebuilding.

Conceptualisation

While environmental factors can be a contributing factor to violence, climate adaptation is considered to relieve pressure and in turn reduce violent conflict (Regan & Kim, 2020). In addition, even if climate change is not directly connected to environmental conflict, it is often considered a 'threat-multiplier', making violence more likely (IOM, 2021). These threats arising though environmental pressure make it necessary to employ EPB strategies to mitigate conflict.

What EPB encompasses is contested, but scholars have attempted to come up with a definition (see Bruch et al., n.d). They describe the activities of EPB spanning from preventing environmental conflict, to fostering cooperation and building the capabilities necessary for sustainable peace. This definition is very broad, which indicates the many dimensions that are considered EPB. Included environmental aspects are wide-ranging and can incorporate policies for protecting the environment, integrating local actors into environmental management or even spreading awareness about environmental degradation.

Within these efforts, natural resources are deeply intertwined. Not only do finite resources promote scarcity, but sustainable natural resource management (NRM) is a key strategy in EPB (Krampe, 2017). Though water, food and similar items are also 'natural resources', NRM typically focuses on lootable resources, such as diamonds in Sierra Leone that would fund rebel groups (Beevers, 2015). However, increasing efforts are being made to move beyond NRM by including water, with a recent project on the Wadi El Ku River in Sudan proving a viable entry point to cooperation (Carrington, 2019).

The emergence of Environmental Peacebuilding

While EPB is mostly practice-oriented, it is important to discuss the scholarly contributions made in the recent decades. To do this, I will review several aspects of the literature, namely the origins, main approaches, and limitations to EPB. By doing so, the analysis of the origins will reflect how EPB emerged in peacebuilding, whereas the different approaches will elucidate the different strategies employed. Furthermore, the literature on limitations will draw attention to the discrepancies between the goals of EPB and what often happens in practice. Here, it will become clear that while there are real benefits of EPB as an approach, the lessons learned are integral to its success moving forward. Subsequently, I will consolidate five different dimensions of EPB provisions, to synthesise a more encompassing understanding of how the environment can be integrated. These dimensions form a toolkit of strategies, which will elucidate the different forms EPB can take.

Origins

The environmental approach to peacebuilding first emerged in the early nineties, when it became clear that while natural resources contribute to conflict, they can also be used to foster cooperation (Ogden, 2018). Indeed, even though researchers still contest the notion that climate change and conflict are directly linked, changes to the environment and the subsequent risks this imposes on society have the potential to lead to violent conflict (see von Soest, 2020). Furthermore, von Soest (2020) also describes how Sub-Saharan African is especially vulnerable, and climate change is regarded as a 'threat-multiplier'. That being said, competition over scarce resources does not necessarily lead to violent conflict but can potentially aggravate tensions. Moreover, it is important to remember that environmental factors are not deterministic to conflict, and human agency in violence cannot be ignored.

Despite the link between the environment and conflict not being straightforward, EPB has great potential to foster cooperation post-conflict. Ogden (2018) highlights that in 1999, when the UN took over administration in Kosovo, even though water management was not a political issue, it could have been used as an opportunity the foster cooperation between Serbia and Kosovo. He also indicates that while there has been a lot of development in EPB on the policy side, this is not always reflected on the research side, especially in terms of comparative studies.

Two sides of the same problem: Cooperation and risk reduction

There are two perspectives for integrating the environment into peacebuilding identified in the literature: environmental cooperation and resource risk (see Krampe, 2017). The former relies on indirect spill over effects from environmental cooperation for sustainable peace, while the latter attempts to mitigate instability through direct management of natural resources (e.g., NRM). For instance, in the case of Sierra Leone, a resource risk approach was used to address the conflict and build peace, as the main strategy was controlling the diamond trade through the issuing of certificates so they would no longer be used for rebel funding (Beevers, 2015). If EPB would have instead focused on reconciliation and cooperation between parties after conflict, for instance by agreeing on terms for using a watering hole, this would constitute the cooperation perspective. However, Krampe (2017) highlights that while both approaches explain the need for environmental considerations in peacebuilding, it is noteworthy that the cooperation perspective has not been empirically substantiated, mainly because of difficulties measuring spill over effects. This is because even though attempts have been made to promote environmental cooperation, for example through peace parks, it is not always possible to incentivise all parties to cooperate. This is illustrated by the peace park between Costa Rica and Nicaragua, which became a competition to gain control over previous 'no-man's land', with rebels turning the peace park into a new conflict zone (Barquet, 2015).

Both approaches suggest potential avenues to post-conflict stability, however, Krampe (2017) stresses that most research focuses exclusively on NRM, ignoring other aspects of EPB (such as capacity building) and calls for research addressing the complexities of the relationship between environmental issues and peacebuilding. This deficiency suggests closer analysis of the more negative sides of EPB.

Furthermore, it is important to realise potential shortcomings of EPB. Some scholars point out that while EPB is becoming more ingrained into peacebuilding processes, there has not been much emphasis on evaluation and the lessons learned (Ide, 2020; Johnson et al., 2020). Ide (2020) indicates that while EPB has distinct advantages, such as incentivising cooperation in conflict resolution and including environmental issues in the wider peacebuilding processes, its potentially negative implications are rarely discussed. To illustrate, a focus on water accessibility in the West Bank benefitted local communities. However, it drew the attention away from structural inequalities such as the Israeli occupation, which was much more important to address and through this process ended up neglected. Ide (2020) conceptualises these as the '6 D's' (depoliticisation, displacement, discrimination, deterioration into conflict,

delegitimisation of the state and degradation of the environment) and argues that taking these drawbacks into account is essential to mitigate risks and allow the benefits of environmental peacekeeping to be realised. He also notes that the six Ds can interact with each other, negatively reinforcing the individual effects. Furthermore, Ide (2020) stresses the importance of knowledge generation on the negative effects of EPB to develop a better understanding of project needs, as these remain context-specific and cannot rely on one-size fits all approaches.

Dimensions that matter: an Environmental Peacebuilding toolkit

The above approaches show that there are many ways to use the environment to achieve stability. However, many strategies, such as NRM, use a very narrow understanding of the environment to do this or fail to account for potential issues. For this reason, the following sections will elucidate some strategies to address EPB. It is important to realise that these individual strategies do not exist in a vacuum, but rather function as a toolkit, all contributing to the same goal: using the environment to promote peace. The use of these dimensions is two-fold. First, they allow for a broader understanding of how the environment can be integrated into peacebuilding. Second, the framework allows for a systematic analysis of provisions and policies. Together, the dimensions contribute to a better understanding of EPB's benefits, as well as potential limitations.

Policies and laws

Establishing and maintaining institutional capacity post-conflict is essential to promote stability and peace. Implementing environmental laws and policies can be a way to decide the rules in place and protect the environment. For example, as mentioned previously, Sierra Leone implemented diamond certificates, cutting off rebel funding and solidifying the rule of law (Beevers, 2015). Furthermore, in Afghanistan, establishing laws for environmental protection has been a crucial development considering the challenges to local engagement caused by reoccurring conflict (Conca & Wallace, 2009). Moreover, international capacity building can simplify development, sharing best practices and providing support. However, it needs to be considered that laws take time to be implemented and do not exist alone. Rather, continuous development and engagement is necessary to ensure their success.

Cooperation and Development initiatives

First, it is noteworthy that cooperation between governments or groups post-conflict can also be referred to as power-sharing in some instances. However, here the term cooperation is used to signal collaboration in environmental matters, for instance in oil production in Sudan and South Sudan.

Environmental cooperation is a key approach to EPB, as outlined by Krampe (2017), where groups are incentivised to work together rather than compete over resources. This can be reflected by mutual control over for example a peace park (as was attempted in Nicaragua and Costa Rica), or an agreement of how resources will be managed. However, cooperation can also be fostered through projects with benefits for conflicting parties, such as local development initiatives.

Over the past decade, development projects have increasingly integrated environmental concerns. Specifically, water management programmes or reforestation initiatives attempt to both restore the environment and promote cooperation. For example, the Great Green Wall initiative aims to plant an 8000km wall of vegetation, in the regions bordering the Sahel, promoting reforestation and economic development (thegreatgreenwall.org, n.d).

Local vs International

Due to the overemphasis on natural resources and NRM, other aspects such as local needs and contexts are often neglected and thus negatively affect peace and stability. This played out in Liberia, where emphasis on the development of the timber industry post-conflict neglected local needs and excluded them from decision-making processes (see Beevers, 2015). In turn, this created tensions between timber companies and local communities, where they did not feel included in the management decisions of the resources of their community, counteracting previous attempt of EPB and cooperation.

However, it is important to note that the emphasis on economic development did not unilaterally cause the resurgence of tensions (Beevers, 2015). Rather, their combination with international actors, who often lack the necessary context to act accordingly, carry out measures that are unsuitable to local needs. In Sierra Leone, this emerged as the implementation of policy which excluded the community from diamond mining decisions, creating more tensions in an already unstable situation. Contrastingly, combining NRM with a local approach would have allowed for cooperation and trust, building state-society relations by interacting in the diamond industry. Similar trends can be observed in Liberia's timber industry. For this reason, Beevers

(2015) highlights that international interventions often overlook the environment and sustainable livelihoods, such as water and food, for short-term economic gain. He argues that in the trade-off between economic reconstruction and individual livelihoods in EPB, more emphasis needs to be devoted to local contexts.

When discussing international intervention in EPB, it is essential to address the UN Environment Programme's (UNEP) involvement in knowledge building and peacebuilding operations. According to Dalmer (2021), UNEP first addressed environmental concerns post-conflict after the 1999 Kosovo conflict, when it increasingly sought to get involved in peacebuilding, which then was outside of its mandate. The author highlights that the organisation steadily inserted themselves as knowledge managers, partnering with different organisations and becoming technical experts in the field of EPB. Moreover, UNEP's role quickly expanded to include technical assessments and helping implement environmental policy, solidifying its growing impact in EPB.

UNEP's involvement paved the way for several opportunities, such as Post-conflict Environmental Assessments, conducted in over 15 different countries. These reports increased attention on environmental needs post-conflict, highlighting the focus on natural resources, and lack in addressing social ties that play into their management (Conca & Wallace, 2009). However, UNEP's reports seemingly favour international ownership, and attention to local involvement in EPB is essential (Krampe, 2021).

The five dimensions of Environmental peacebuilding

The above sections have highlighted the need to approach EPB from multiple angles to make up for the limitations outlined by Ide (2020). To do this, I have highlighted five dimensions that together form a multi-facetted approach for including the environment in peacebuilding. Multi-facetted EPB strategies, such as including international actors to help develop policies and spur capacity building, should be combined with local cooperation to account for problems that arise from narrow understandings of the environment (for example NRM). Table 1 summarises these dimensions, explaining the forms these can take.

Table 1: Summary of strategies

| Dimension	Description
Laws/policies	Enacting policies and/laws that include protecting the environment or better managing resources to protect from abuses.
Cooperation	Cooperation arrangements between conflicting parties or levels of government on environmental protection and resource management to promote stability.
Development initiatives	Development initiatives to further post-conflict development and growth in the region, considering the environment and resources.
Local	The inclusion of local people's input in peacebuilding through for example traditional conflict resolution mechanisms or the participation of civil society in environmental projects/natural resource management.
International	Increased funding or technical support (by the international community or UN) to overcome post-conflict instability in relation to the environment/resources and develop the capacity to withstand future environmental stressors.

Methodology

My study aims to contribute to the literature by adding a quantitative element to the conventional qualitative case studies found in EPB research. This mixed methods approach addresses multiple aspects of EPB. Firstly, the quantitative analysis allows for the analysis of trends within the boarder peace agreement scholarship. Secondly, as numbers alone do not explain the trends in provisions, the qualitative analysis further assesses the content of environmental provisions within individual peace agreements. Lastly, as peace agreements are insufficient to explain how peacebuilding works on the ground, I will conduct a case study of the country where environmental measures are heavily integrated into peace agreements: Sudan. This case study will cover historical context, an initial analysis post-conflict, an updated analysis of 2020, and a discussion of the implications on EPB.

To better investigate the trends of EPB, I will first focus on if and how many provisions related to the environment are included in the different peace agreements. In doing so, the analysis will also allow to narrow down on key peace agreements that include EPB provisions and assess the wide variety of measures included. The data used to do this is the Pa-X dataset, which includes all peace agreements until January 2023 (University of Edinburgh, 2023).

The Pa-X dataset analyses the content of peace agreements as of 1990, coding provisions into subcategories such as women or power-sharing. The dataset allows for both quantitative and qualitative analysis of over 2000 peace agreements. Unfortunately, the database does not discuss its reliability or potential coder biases. However, it does disclose its funding – primarily from UK government agencies and the UN. Similarly, their definitions or indicators used for their categorisation tool are not disclosed. Thereby the reliability of the dataset is limited, and a more qualitative approach is necessitated, where the researcher has to critically engage with the results, not taking them at face value. Concurrently, numerous authors, such as Bell (2006) have used the dataset in peer-reviewed and critically acclaimed journals, underpinning the utility of the database. Therefore, while an imperfect source, it still constitutes one of the only holistic databases that allows for the upcoming analysis. To this end, Figure 1 outlines the case selection for the first part of the analysis.

Figure 1: Tree Diagram on EPB in Peace Agreements
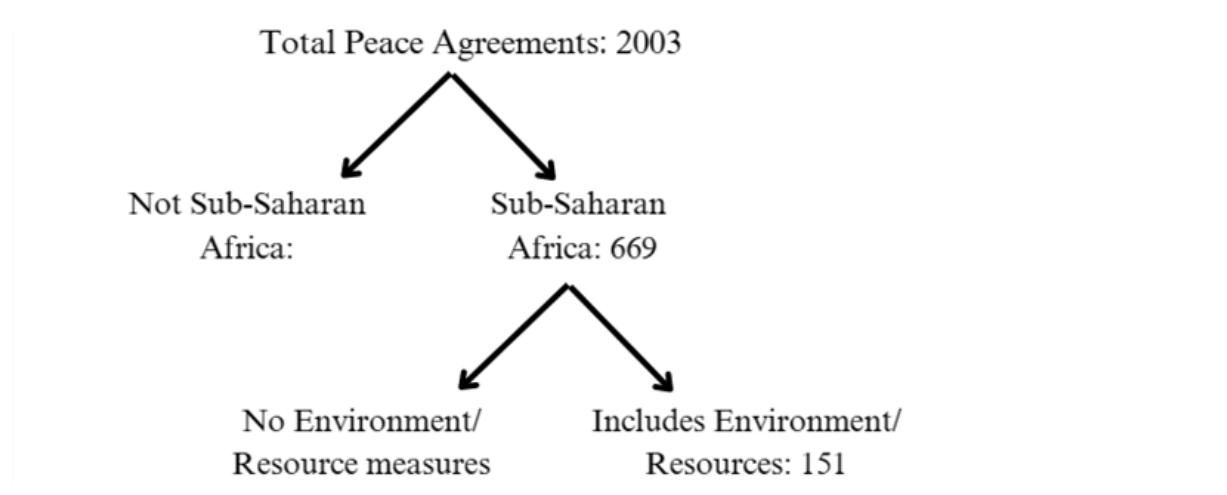
First, I select only Sub-Saharan African cases, as it is the region that is most vulnerable to climate change (World Risk Index, 2022). Furthermore, as conflict in the region has been shown to originate due to environmental stressors such as drought or resource scarcity, the continent is of particular interest (von Soest 2020). In addition, 669 of the total 2002 peace agreements include Sub-Saharan African countries, making it by far the most conflict-ridden

region (University of Edinburgh, 2023). Therefore, the study will focus on peace agreements from this region.

Second, to display the measures pertaining to EPB, the 669 cases were reduced to 151 by only selecting those that had provisions coded as 'environment' or 'natural resource' (University of Edinburgh, 2023). The relevant articles are highlighted in the dataset according to these categories. A combination of both is especially useful compared to solely analysing provisions under 'environment', as EPB not only includes provisions to rebuild the environment post-conflict, but also considers sustainable resource management (see NRM) as a key contributor to stability. By taking both into account, the trend of EPB and the proposed provisions to build stability is made clearer.

Furthermore, the individual provisions are coded as a binary '0' and '1', depending on whether the measure mentions the respective categories. It is important to note that some of the codes overlap, marking provisions as both 'natural resource' and 'environment' in the analysis. While this should be considered when reflecting on the quantitative part of the analysis, it is important to note that peacebuilding measures can reflect many sub-issues that combine both elements. This double coding does, however, reflect the limitations of quantitative analysis in the research on EPB, and indicates that the development of alternative data sources could be useful for future research.

The analysis will, using the 151 peace agreements with environmental provisions, apply a combination of quantitative and qualitative content analysis to decipher the trends of EPB and identify the most prominent cases. This step ensures that potential double coding can be taken into consideration, as well as identify differences in the quality and content of environmental measures. Subsequently, the analysis will focus on specific cases of how EPB is implemented in practice to stabilise post-conflict regions, such as the 2005 Comprehensive agreement, the Inter-Congolese Negotiations and the 2020 Juba agreement.

Peace agreements and the Environment in Sub-Saharan Africa

General trends

The initial analysis spans the 151 identified peace agreements with measures relating to the categories of environment and natural resources. To get a better overview of the diversity of the cases, they were assessed quantitatively by counting how many measures of each category were in the individual peace agreements. To that end, the 151 cases contain 344 measures on natural resources and 238 on the environment. However, it is noteworthy that some of these measures overlap across both categories, and the total number of measures is slightly lower, which again highlight the shortcomings of the data available.

Figure 2: Number of Environmental measures
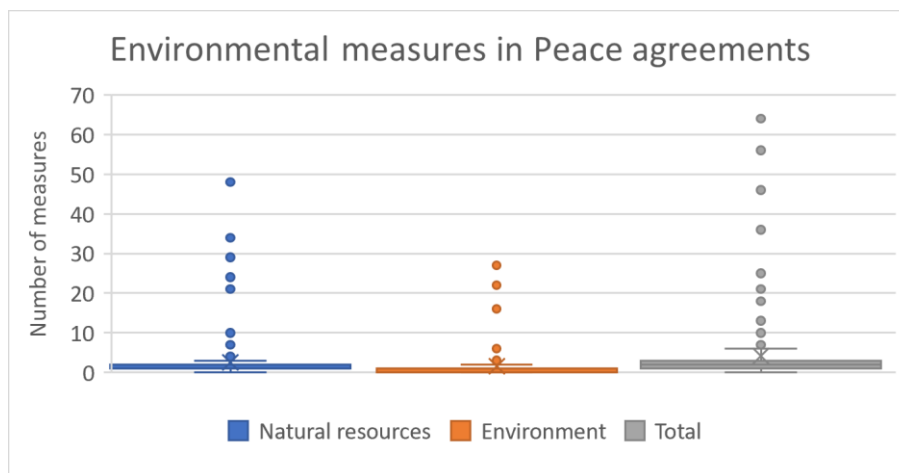
Furthermore, when looking at the measures in the individual cases, there is a clear trend that most peace agreements only include between 0 and 2 measures per category (see Figure 2). This indicates that while EPB is being brought into the conversation, environment is still not extensively present in the final peace agreements. In addition, while intuitively I expected that the measures would increase over time, as research on EPB and international attention towards it became more frequent, cases with more environmental measures seem not appear chronologically (see Figure 3). Rather, there seem to be spikes of peace agreements with many measures, while many only include the environment in a more limited capacity. Therefore, to get a more accurate read of these 'spikes', it is useful to further refine the cases to allow for more depth, a summary of which can be found in Figure 4.

Figure 3: Number of measures over time
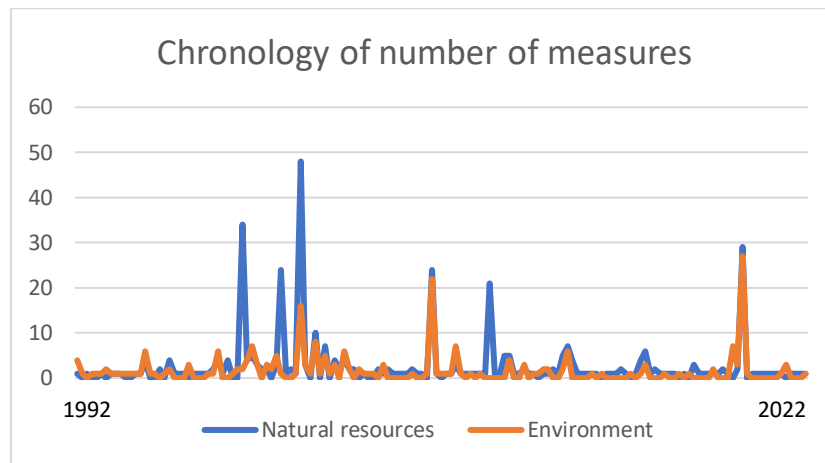
The quality of environmental provisions

After reviewing all 151 cases, it became clear that different types of provisions exist within EPB. However, many of them lack the necessary detail and accountability, or are simply diverse statements, for example an excerpt from the Dar-Es-Salaam Declaration on Peace, Security, Democracy and Development in the Great Lakes Region: "Concerned about the impact of armed conflicts on the environment, particularly the effect of refugees and internally displaced persons on the degradation of the ecosystem of the Congo River Basin and the African Great Lakes region, and fully aware of the link between peace, environment and development;"

Moreover, many measures include setting up a ministry or different positions to deal with the issues at hand, however there are no responsibilities outlined. An example of this is the first Rwandan peace agreement of 1993, with the provision being the following: "The nominative distribution of portfolios shall be as follows: ... PDC: Ministry of Environment and Tourism" Therefore, even if the measure is potentially more useful than a statement, it still lacks the necessary accountability mechanisms that would contribute to stability. For this reason, I filtered out peace agreements that only included the two types of aforementioned provisions, leaving 118 peace agreements with more specific measures related to the environment and natural resources.

Focusing on the remaining 118 peace agreements, we find that many provisions centre around either protecting the environment or sustainably managing natural resources. For example, the 2020 agreement of the Central African Republic states: "We agree as follows: To avoid the looting of natural resources in the North-Eastern Region, or indeed promoting this;" and the

2011 Modogasche Declaration of Kenya posits: "On unauthorised grazing: private farms, conservancies, parks, and the environment at large should be protected and respected by all Parties".

While these are already good steps towards EPB, they may be insufficient by themselves to ensure stability, especially as there are no details outlining responsibilities and concrete actions. After refining the cases based on these criteria, 79 remained. It is here where it became apparent that there was some regional clustering, with the majority of peace agreements with environmental provisions being located in the Eastern Africa and Horn of Africa region, such as Somalia, Kenya and Sudan/South Sudan. Another cluster focused on countries part of and bordering the Sahara, such as Mali and Nigeria. This can be explained because of increased vulnerability to environmental factors and their linked challenges influencing conflict more directly than in other regions.

The decision to limit the analysis did lead to an interesting discovery. Liberia and Sierra Leone, two cases often considered as key for NRM and EPB, were not included in the small-N analysis (Beevers, 2015). The different peace agreements fell out of the analysis for diverse reasons. On the one hand, the Sierra Leone cases only included a few provisions for the environment and natural resources. While these included many sub-issues, there was a clear focus on natural resources, which refers to the at times exclusive focus on natural resources in EPB (Beevers, 2015; Johnson et al., 2020). Contrastingly, the Liberian cases fell out of the analysis earlier, as not only were there a lack of provisions, but these almost exclusively focused on portfolios, rather than accountability and cooperation mechanisms. This observation has several implications for the EPB scholarship. On the one hand, EPB may not be as ingrained as initially thought, which contributed to the identified shortcomings. On the other, there may be discrepancies between what is decided in peace agreements and what is done in practice.

However, while all these cases went into further detail to protect the environment and manage natural resources, I chose to further limit the number of cases to allow for deeper analysis of the most crucial cases. To do this, I will only consider peace agreements with at least three provisions per category and analyse the individual measures they propose. This is because the volume of provisions will most likely exceed the vague statements and proposed measures mentioned previously and offer better insight into the diversity of EPB measures. In addition, the focus on a smaller volume of key cases limits the analysis to peace agreements already addressing environmental factors to a high degree. Lastly, I chose to limit the number of cases

to focus on the regional trend I identified in the previous step and analyse whether there is a regional element in the field of EPB.

Figure 4: Tree Diagram on specific Environmental Measures in Peace Agreements
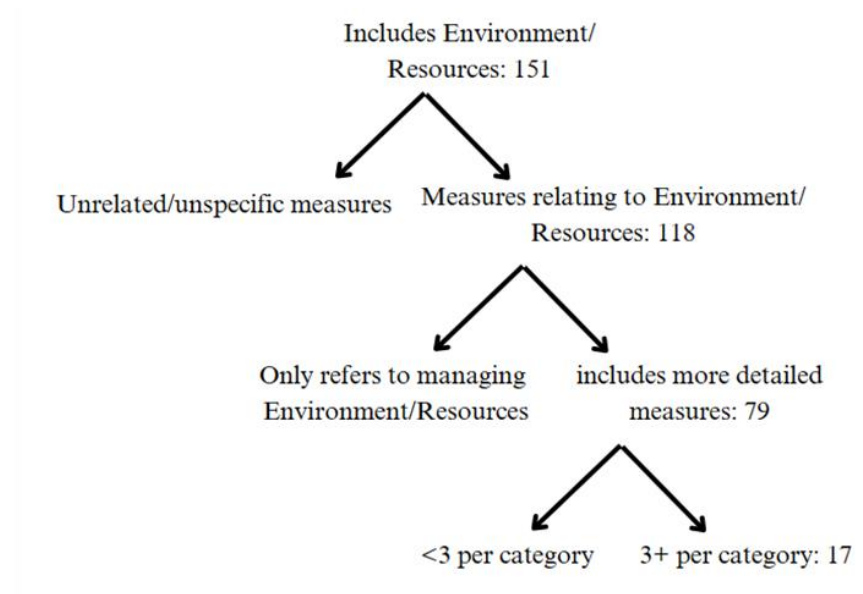
That being said, these remaining 17 cases include 206 provisions on either environment or natural resources, which in turn contain many sub-issues. The provisions in these 17 cases make up almost a third of all provisions within the initial 151 cases, reflecting the vast differences of EPB found in peace agreements. In addition, the cases cover seven African countries, of which four (and 14 cases) are located in East Africa. Sudan has nine peace agreements, followed by South Sudan with seven peace agreements. These trends could indicate that while EPB has not happened chronologically, it may be more present in certain regions. This ties back to the idea that many of the most vulnerable countries to climate change are in the Horn of Africa, as well as UNEP being in the same region. Amongst the identified cases, the most notable is the 2020 Sudanese Juba agreement, which is the most ambitious peace agreement in terms of environmental provisions (Marsden, 2020).

Different dimensions of environmental peacebuilding

To provide a more systematic analysis of the provisions, I combined five categories of environmental measures that the provisions could attempt to address using previous literature (see summary in Table 2). Some provisions do not fit into these categories, as they consisted of statements or other unrelated provisions as mentioned in the previous steps. The included categories attempt to go beyond the Pa-X coding of 'natural resource' and 'environment', instead discerning between five types of EPB measures which could promote stability.

Additionally, it is important to note that these categories can be and are often used in other peacebuilding contexts, here they explicitly refer to the strategy in the context of either environment or natural resources. For example, a cooperation measure would refer to how the parties will manage the responsibility and profits from a natural resource such as oil. Moreover, provisions on international community are not necessarily positive, as depending on how they are worded they could act as a scapegoat, shifting accountability away from the parties of the conflict.

The following table (Table 2) further illustrates the different types of provisions found within the peace agreements, after which the dimensions found in the different peace agreements are summarised in Table 3.

Table 2: Description of EPB measures

Type of measure	Example of provision
(1) Laws/policies	The State shall promote, through legislation, sustainable utilization of natural resources and best practices with respect to their management (Interim Constitution of Sudan)
(2) Cooperation	23.1.The regions/states shall be a genuine partner with the federal government in managing natural resources extracted from their lands throughout all the phases of allotment, awarding, contracting, production, and marketing. The regions/states shall hold primary responsibility […] encroach on the health of citizens. (Juba Agreement)
(3) Development initiatives	The following development projects, which have been neglected, shall be reviewed in order to assess their feasibility and, if found feasible, revived: ... iii. Jebel Marra Thermal Energy Project (Doha Document for Peace in Darfur)
(4) Local	Recognition of traditional rights (including hawakeer) and historical rights to land to ensure the safe and sustainable basis to livelihood and development in Darfur; (Doha Document for Peace in Darfur)
(5) International	Launch and appeal to the International Community for the necessary funds to implement this plan with all possible speed. (Inter-Congolese Negotiations)

Table 3: Summary of measures found in the Peace agreements.

Name of Agreement	(1)	(2)	(3)	(4)	(5)
Sudan Peace Agreement	x	x	x	x	
Inter- Congolese Negotiations: The Final Act ('The Sun City Agreement')	x	x	x	x	x
The Transitional Federal Charter of the Somali Republic	x	x	x		
Protocol between the Government of the Sudan and the Sudan People's Liberation Movement (SPLM) on Power Sharing		x			
Protocol between the Government of Sudan and the Sudan People's Liberation Movement on the Resolution of Conflict in Southern Kordofan/Nuba Mountains and the Blue Nile States		x	x	x	
Comprehensive Peace Agreement between the Government of the Republic of the Sudan and the Sudan People's Liberation Army/Sudan People's Liberation Movement (Naivasha Agreement)	x	x	x	x	
Constitution of 18 March 2005 (Burundi)	x	x			
The Interim National Constitution of the Republic of Sudan 2005	x	x	x	x	x
Darfur Peace Agreement	x	x			
Eastern Sudan Peace Agreement	x		x	x	
Memorandum of Peace and Understanding in Cabinda Province		x			
Doha Document for Peace in Darfur (DDPD)	x	x	x	x	
Provisional Constitution of The Federal Republic of Somalia	x	x			
Constitution of Zimbabwe Amendment (No 20) 2013	x		x	x	
Agreement on the Resolution of the Conflict in the Republic of South Sudan	x	x	x	x	
Revitalised Agreement on the Resolution of the Conflict in the Republic of South Sudan (R-ARCSS)	x	x			
Sudan peace agreement (Juba Agreement)	x	x	x	x	

Table 3 offers more insights into the types of provisions in EPB. Even though all 17 analysed cases had at least 6 measures, many only cover a fraction of the identified categories. Indeed, only 7 peace agreements cover four or more of the categories, indicating that measures are still limited despite the higher volume. Furthermore, only one peace agreement among these 7 does not include either Sudan or South Sudan, highlighting that EPB is heavily confined to specific contexts and circumstances. Moreover, this additional case (Inter-Congolese Negotiations) includes many calls for international intervention and leading statements to act, indicating that national ownership may be complicated, and international actors are still heavily involved.

The above blended quantitative and qualitative analysis has indicated that while there have been some strides in including the environment into peace agreements, there are still many gaps in the depth and breadth of these measures. However, the analysis has also inferred that some countries have routinely agreed on peace agreements containing extensive environmental measures, such as Sudan and South Sudan.

In the subsequent section, I will perform a case study analysis on EPB in practice in Sudan. While it would add to the research to assess both Sudan and South Sudan, Sudan has a longer history and is thus not as plagued with nation-building tasks. Likewise, an analysis of South Sudan can also be expected to give similar results as Sudan given their shared history pre-secession. In addition, UNEP is heavily involved in Sudan, allowing for the analysis to cover international influence in EPB processes. These factors allow the analysis of whether and how EPB contributes to post-conflict stability.

The Case of Sudan

Structure of the case study

Firstly, it is important to note that the analysis of EPB in Sudan has some limitations. Given UNEP's involvement in the process, most documentation is either carried out by them, or in collaboration with them. This trend originates from UNEP's drafting of a post-conflict environmental assessment after the 2005 Comprehensive Peace Agreement (UNEP, 2007). Following this publication, UNEP continued its involvement in Sudan, with four further reports discussing EPB initiatives in the country (UNEP, 2012; UNEP, 2013; UNEP, 2014; UNEP, 2020). While these reports allow for structured analysis of EPB in Sudan, UNEP's overarching involvement may influence the objectivity of the report. Despite these limitations, the reports allow for a balanced analysis over several years, along with relevant expert input on what is happening on the ground.

Therefore, this section will aim to bridge the gap of how peace agreements initially incorporate the environment (in the previous section) with how these provisions play out on the ground. The analysis will focus on the two main UNEP reports (2007 and 2020), which highlight the environmental issues faced in Sudan, as well as the steps taken to combat these. The expert reports will add additional context where necessary. Furthermore, the analysis will use these findings considering the five dimensions of EPB mentioned in the previous section. To conclude, the study will reflect on the implications of these findings to the wider EPB literature.

History of Sudan – Environmental degradation and conflict

While current headlines are drawing attention to conflict in Sudan, it's long-standing history of violence should not be side-lined. Sudan has, since independence, been plagued by both low- and high-intensity conflict (UNEP, 2007). These conflicts are often directly tied to local environmental conditions, such as increasing desertification or competition over access to water (UNEP, 2007). While many peace agreements have been signed in Sudan (see Table 2), peace remained fragile at best, and conflict reoccurred frequently. Most recently, in April 2023, opposing factions began competing for control in the resource-rich country (Winsor, Crawford, Al-Tawy, 2023).

Conflict in Sudan is routinely linked to environmental degradation, competition over resources and natural disasters (UNEP, 2007). Increasing desertification pushes pastoralists towards sedentary groups, fuelling tensions over resources, oftentimes resulting in conflict. Historically, traditional mechanisms addressed such disputes before they turned violent, but legal reforms in the 70s disbanded these mechanisms, allowing for disputes to turn violent (UNEP, 2007, p. 83). Because of the environmental aspects in conflict, UNEP became increasingly involved with peacebuilding in Sudan after the signing of the Comprehensive Peace Agreement, offering both recommendations, as well as technical assistance (UNEP, 2007; UNEP 2020). Since then, they have spearheaded EPB activities in Sudan. However, despite their involvement, Sudan still seems to be falling short on achieving stability and sustainable peace.

Post-conflict? – UNEP's environmental assessment and recommendations

UNEP's Post-Conflict Environmental assessment of 2007 attempted to outline the environmental challenges facing Sudan in the wake of conflict. The document established 85 recommendations towards the international community and the UN in Sudan, as well as the Government of National Unity, the Government of Southern Sudan, and the Government of the Red Sea. The nature of these recommendations boils down to four main steps to be taken, which are summarised in Table 4.

Table 4: Post-conflict Environmental assessment key recommendations

Recommendation	Dimension (as identified in Table 1)
1. **Invest in environmental management** to support lasting peace in Darfur, and to avoid local conflict over natural resources elsewhere in Sudan	Creation of policies/laws and funding
2. Build **capacity at all levels** of government and **improve legislation** to ensure that **reconstruction and economic development** do not intensify environmental pressures and threaten the livelihoods of present and future generations	Creation of policies/laws and development initiatives
3. National and regional government should **assume increasing responsibility for investment** in the environment and sustainable development	Funding (and cooperation)
4. **All UN relief and development projects** in Sudan should integrate environmental considerations in order to improve the effectiveness of the UN country programme	International and development initiatives

It is evident that while these recommendations seem rational and straight-forward in achieving peace and stability, they lack the local dimension that was identified both in the literature and the initial peace agreement. Indeed, while the recommendations include national and regional governments, little attention is devoted to ensuring local voices are given ownership. Contrastingly, the Comprehensive Agreement clearly expresses consultation and involvement of local communities in negotiating contracts for natural resources and their development. This finding reflects the previous trade-off between local ownership and international involvement,

indicating that the exclusion of local contexts can cause renewed tensions and conflict resurgence.

In addition to the absence of local actors in the recommendation of Environmental assessment, the report seems to define local actors differently to the literature (Johnson et al., 2020; Ide, 2020; Beevers, 2015). Rather than understanding the local level as communities or individuals, UNEP stresses the involvement of the Government of National Unity and the Government of Southern Sudan 'to maximise local engagement' (UNEP, 2007, p. 24). While giving ownership to the governments balances out earlier criticisms of international involvement in EPB, it does not necessarily address local contexts and issues that may arise, especially in a country as large and diverse as Sudan. Furthermore, while the report frequently mentions local dispute mechanisms and informal land agreements to have been successful in the past, they make no suggestions on how to support such initiatives, rather focusing on recommendation at the national level and to state actors (UNEP, 2007, p. 83). Moreover, the Environmental Assessment even highlight a key success story, where a local community worked to rehabilitate the environment, planting trees, and ensuring sustainable management of resources (UNEP, 2007, p. 116). Despite the clear success of local communities in managing resources, the assessment excludes them from key discussions around future management of the environment. Clearly, local ownership is lacking in the recommendations set out in the 2007 report; however, subsequent reports may reflect either progress, stagnation or even regression.

13 years on – Progress or regression?

In 2020, thirteen years after the initial environmental assessment, UNEP published an Environmental Outlook on Sudan. However, despite the numerous recommendations given in the initial assessment, Sudan is still found to be lacking on several dimensions.

First, in terms of legislation, it is important to note that Sudan has made important contributions in enacting environmental policies, with recent laws to regulate water and other natural resources (UNEP, 2020, pp. 266 – 267). However, they still fall short in terms of policies to combats drought and climate change, mainly due to those affected not being included in drafting legislation. Indeed, while many laws have been enacted, Sudan's environmental legislation includes many gaps and overlaps, mainly due to its unidimensional approach (often only considering a single sector) to drafting legislation (UNEP, 2020, p. 270). Furthermore, these gaps and overlaps also play out vertically, with responsibilities at the local, federal and national level overlapping. Moreover, local mechanisms, such as the Native Administration

Act of 1998, remain poorly funded, meaning that while traditional leaders are integral to enforcing environmental policy at a local level, they do not have the capacity to do so (UNEP, 2012, pp. 22 – 35).

Second, Sudan's development initiatives are still severely lacking, and their lack of funding and poor governance makes them unable to contribute to the countries' economic development in a sustainable way (UNEP, 2020, p. 281). The deficiencies of Sudanese development projects are further exacerbated by conflicts. These occur as development projects fail to consider region specific needs, as well as local rights (UNEP, 2020, p. 121). This phenomenon ties back to the lack of harmonisation in legislation, which makes that projects may account for some sectors and needs, yet not to others.

For this reason, there are still many shortcomings in terms of cooperation amongst the different levels of government, as mentioned previously. Furthermore, cooperation between Sudan and South Sudan remains tedious, as power-sharing agreements on oil productions (for example the Interim Constitution) are not always reflected by seamless cooperation (Madimba & Ukata, 2022, pp. 78 – 79).

Moreover, it is essential to note traditional leadership in environmental conservation. Even though these actors are still often neglected by regional and national governments, they play a significant role in implementing environmental legislation and conservation at the local level (UNEP, 2020, p. 35). Their current exclusion from decision-making and lack of funding makes enforcing environmental policies almost impossible.

However, Sudan's Outlook is not all bleak, with many successful water management projects paving the way for cooperation and stability. There have been significant steps in fostering cooperation in water management across different regions in Sudan, as well as their neighbours (UNEP, 2020, p. 158). The Wadi El Ku water project is most significant. The project brought together pastoralists and farmers, once bitter enemies, of the Darfur region to plan a water catchment system that benefitted all parties. Darfur, which experiences much of Sudan's environmental conflict, has therefore been able to cooperate and reduce its bloodshed (Carrington, 2019).

The success of this project highlights the need to move away from top-down initiatives, and rather focus on local projects, with outside actors acting as support systems to assist in capacity building. This way, communities are less vulnerable to conflict, and are equipped with the tools they need to build resilience to environmental conflict. Until now however, the limited

successes indicate that outside actors, such as UNEP, are less interested in accepting the shortcomings of their approach and taking stock of the lessons learnt. Rather, they increasingly insert themselves as the only solution moving forward, drawing attention to emerging problems of which "little local knowledge or data" exists (UNEP, 2020, p. 21). However, it is important to realise that these shortcomings may not all be because of UNEP, but rather that the Sudanese government is unwilling to uphold these projects or funding insecurity makes it impossible to maintain initiatives.

Looking ahead – implications on EPB in Sudan and beyond

The study of environmental measures in peace agreements has indicated that EPB is not as straightforward as using environmental cooperation and reducing the risk of resources to increase stability. Rather, EPB can take several different forms and approaches, improving development, enacting policies to outline the management of resources or building capacity through international actors. Despite this, there are still limitations in their implementation, either through accountability not being clearly outlined in the peace agreement, or a lack of capacity to implement these initiatives in a post-conflict setting.

Furthermore, the findings of the analysis on Sudan may not deliver a clear conclusion on the success of EPB strategies, as other factors may also contribute to stagnation on the ground. However, they do indicate some key implications and recommendations for EPB moving forwards. There are clear issues in linking local contexts and communities to wider environmental governance, however increased effort in bridging this gap is of utmost necessity to ensure sustainable peace. Furthermore, while the problems with integrating local mechanisms and cooperation have been discussed at length, practical and feasible solutions seem to be lacking. This indicates that to integrate the local involvement that is desired by the peace agreement, renewed efforts to include the local population are of utmost importance.

Therefore, combining local ownership and international capacity building (as international aid is still necessary) is essential for successful EPB. Moving forward, EPB strategies need to combine local knowledge of issues with the technical knowledge from organisations such as UNEP, and tailor these lessons learned with needs on the ground. Both in the case of Sudan and in previous case studies, cooperation between international actors, and to a lesser extent governments, has proven insufficient to address tensions at the local level. Rather, local mechanisms for conflict resolution have proven more effective in avoiding violent conflict. Furthermore, local initiatives have proven effective in managing the environment on a smaller

scale, fostering ownership and incentivising cooperation over resources. However, such steps need technical and financial support provided by organisations such as UNEP, to build resilience and sustainable livelihoods in the wake of conflict. Similar conclusions have also been drawn by Autesserre (2021), who highlights the success of local initiatives (with the support of international actors) and emphasising the importance of local ownership in peacebuilding.

Conclusion

A lot has been done to get the environment on the agenda and include it in peace agreements, yet many provisions remain vague or inefficient to cover the volume of steps needed to promote EPB. The environment is receiving more attention, but peace agreements rarely include more than two provisions. Furthermore, the case of Sudan makes clear that even though it included many provisions on paper, this is not indicative of progress on the ground. However, it has attempted to address these environmental concerns in several ways, with water management emerging as a gateway to cooperation.

However, there is also still much to be done in future research. Namely, concentrated efforts need to be made in conducting large-n analyses and collecting data, so that comparisons can consolidate the lessons learnt and aid in future recommendations. Furthermore, even if this paper laid the groundwork, studies should further elaborate a multifaceted understanding of EPB across case studies, taking different strategies and factors into consideration. Through this, future studies can identify what aspects are well-developed, and which need more attention.

EPB is not some sort of miraculous solution that will change how we approach post-conflict reconstruction. It is however a great springboard to shift the conversation to more inclusive peacebuilding practices, such as local cooperation and sustainable development. This is especially relevant to those vulnerable to climate change, such as in Sub-Saharan Africa. If organisations such as UNEP continue to ignore the glaring research of its shortcomings, this may have implications on including the environment in the discussion moving forward. There are still shortcomings the Sudan's capacity to enact these ambitious policies, but the steps they can take should not be curtailed by international intervention. If these identified lessons learnt would be considered, then EPB has the potential to contribute to post-conflict stability.

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