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Conflict and
Environment
Observatory

The Environment, Conflict and Peace in Sudan: From Response to Recovery

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1. Executive summary

This research aims to foster a greater understanding of how the environment interacts with conflict and peace in Sudan. Its findings illustrate that environmental issues remain urgent and critical, with both short- and long-term implications for aid, political engagement and recovery. The research is based on a literature review, analysis of primary sources, interviews and focus group discussions.

The environment and conflict

The first section outlines how the environment interacts with conflict dynamics in Sudan in ways that are intertwined across local, national and international levels. At the local level, people's relationships with their environment are highly context specific across Sudan. Farming and pastoralist livelihood systems have evolved in accordance with changing environmental and societal conditions. However, environmental pressures on rural and urban livelihoods have increased over many years due to a combination of weak governance and national policies, intensifying climate stresses, and the environmental consequences of the current war. At the same time, the way the aid response is delivered also risks damaging the environment and undermining relationships that sustain peaceful natural resource management.

The compound pressures of heightened vulnerability, conflict and environmental degradation place a huge burden on communities and increase the risk of conflict. Yet this is not a foregone conclusion, and Sudan's history features examples of changes and pressures leading to strengthened or sustained relationships of peace as a means to survive and adapt.

Competition for natural resources linked to national political and economic interests has also played an important role in driving violence and conflict at the national level. Sudan's history is characterised by struggles over the control of high-value natural resources such as oil and gold. Such resources have been a source of competition that has led to war and have been used to fund armed conflict.

Elite capture of and control over these resources has been a constant for decades, which in turn has influenced political engagement and policies to sustain control. Transparency and oversight have been virtually non-existent, including in environmental oversight and regulatory enforcement. Sudan's natural resources also play a significant role in driving international and regional interest, including land and farming operations, livestock, control of the Red Sea, Gum Arabic and the Nile waters. International economic, political and security interests have the potential to spoil or support peace efforts.

The environment and peace

Despite the fact that environmental factors play an important role in Sudan's conflict dynamics, they are often overlooked during times of profound crisis and humanitarian need. Conflict sensitivity is critical to ensure that a greater understanding of this informs actions to minimise the risk of contributing to environmental degradation or worsening environmental security risks. This section outlines priorities for promoting the interrelated aspects of environment and peace.

The research identified two key principles to inform meaningful engagement on efforts to work at this intersection: centring Sudanese experience and fostering collective action. It identifies key entry points for integrating the environment while recognising that humanitarian actors are providing relief under intensely challenging circumstances. Prioritising localised approaches

and inclusivity in the aid response can provide a more informed understanding of local contexts, their environmental dimensions and conflict sensitivity risks. Integrated skills and capacities across humanitarian, environmental and conflict expertise can be very beneficial in, for example, enabling a more effective response to severe food insecurity. Locally led approaches, including mutual aid efforts, have also been responsive and adaptive to environmental aspects of the crisis. There have also been previous structural and systemic efforts to improve humanitarian good practice, such as joint work between the United Nations Office for the Coordination of Humanitarian Affairs and the United Nations Environment Programme to develop an 'environment marker', which offers important lessons.

Actively integrating an understanding of natural resource management into local peacebuilding strategies and developing programmes that have shared environmental and peacebuilding objectives offer valuable opportunities to enhance social cohesion and support gender equality. Narratives matter; thus, it is important that environmental issues and natural resources are framed for their potential to unify communities as shared concerns and not only presented as an inevitable locus of conflict. There are many examples from Sudan of how dialogue over the peaceful sharing of natural resources has been a bedrock for local peace processes and conflict resolution mechanisms, including building on or complementing previous and existing processes.

While Sudan's institutions have been barely functioning due to the crisis and loss of experienced civil servants, it is important to build on previous policy engagement and support Sudanese expertise to prepare for the 'day after'. Examples of entry points include policies in relation to environmental protection, the regulation of extractives, waste management, land reform and natural resource management. Policies must go hand in hand with measures to address the root causes of grievances linked to environmental degradation.

The environment should be integrated from the outset in any steps towards a peace process, particularly building on lessons from previous agreements – in particular their lack of inclusive processes and poor implementation. Other key entry points include private sector reform and green recovery strategies. None of these assistance and peacebuilding strategies will succeed without accurate and comprehensive environmental and socio-ecological data. Environmental research and awareness raising is key, and areas such as citizen science and better collaboration between communities, civil society, research institutions and the media can help to foster better knowledge sharing and understanding of environmental issues.

Recommendations:

- 1) Understanding the environmental dimensions of conflict and peace is foundational for peacebuilding strategies in Sudan. While the war is still raging, it is critical that the environment is not deprioritised but is instead integrated as a key consideration to inform a more impactful and sustainable approach to peace; an approach that addresses both the root causes of localised conflict and the drivers of national-level elite competition.
- 2) Sudanese civil society should be better supported to sustain their critical roles on environmental issues and in peacebuilding. Civil society specialising in these areas have been hard hit by the war, yet have sought to sustain engagement despite extreme pressures and very limited resources. Their role is important both in the immediate and long-term.
- 3) The aid sector – including practitioners, policy makers and donors – should ensure that environmental and climate change considerations are integrated into humanitarian,

development and peacebuilding strategies and programming. When done well this helps ensure an impactful and conflict sensitive response during times of both conflict and peace.

- 4) The environment, climate resilience and sustainable natural resource management must form a key pillar of an eventual transition to peace that embeds a green recovery. This applies to both formal governance systems, policies and institutions and to the wide range of actors that have a role to play in recovery, including the private sector. In the medium term, and as instability continues amidst protracted conflict, opportunities to embed relevant approaches and principles should be taken as this can help to reduce environmental harm, and with it threats to livelihoods, wellbeing and peace.

2. Introduction

Years of instability and conflict in Sudan have had a devastating impact on its people and its ecosystems. Sudan's environment and its resources are important components of both current and long-term conflict dynamics, and contextual understanding of them must inform strategies for peace and measures towards Sudan's recovery. Contrary to the scant attention that the environment has received in the conflict discourse to date, this report argues that Sudan's environment and natural resources must be a recognised component of aid, stabilisation, peace-making and peacebuilding strategies.

Sudan faces many environmental challenges, including environmental degradation, increased pressures on ecosystems and the intensifying impacts of climate change. In turn, conflict in Sudan is shaped and influenced by dynamics around its natural resources and by the changing environment. This relationship offers both challenges and opportunities for peace. This research aims to foster a greater understanding of how the environment interacts with conflict and peace in Sudan. While the nature of these interconnected relations has been covered in some research and is understood well by some experts and civil society, there has often been a sense that environmental considerations tend to be relegated to a less urgent category during times of crisis, particularly given the current war and the scale of the humanitarian catastrophe.

However, this research illustrates that these issues remain urgent and critical. In the immediate term, understanding how the environment affects relationships, conflict and power is fundamental to developing a more informed understanding of the context from local, national and international perspectives, with important relevance for short-term approaches to aid and political engagement. In the longer-term, decisions and actions taken now have serious implications for future peace, recovery and environmental sustainability. To address this, some initial steps can be taken to ensure that strategies integrate long-term considerations in order to minimise the risk of unintended negative consequences and maximise effective responses. This applies, for example, in how one approaches designing multi-year aid response in a protracted crisis, strengthening interim/*de-facto* systems and national-level institutions, supporting civic engagement, and synchronising steps towards any nascent peace and recovery process. Acting on these areas now will enable both short- and long-term responses to be woven into existing engagement, and help inform more relevant strategies.

Structure of the report

The report begins by explaining how natural resources shape conflict dynamics across interconnected geographies in Sudan. It focuses on how this interaction affects local and communal relationships and livelihoods, including the long-term consequences of historical governance and policies, together with the growing stresses from climate change. It explores how Sudan's environment is being heavily affected by the current war, which has driven destruction, deforestation and pollution, with the resulting environmental degradation undermining livelihoods, health and well-being. The linkages between local and national dynamics are made, as policies and national political interests have further weakened existing local natural resource management structures. High-value natural resources have long played a significant role in Sudan's political economy, driving elite competition and strategies of war. Sudan's natural environment and resources also influence regional and international interests in its political and economic dynamics.

The report argues that integrating environmental considerations throughout the response to the conflict is vital. Based on insights from environmental experts and civil society, we explore the ways in which the environment must inform both urgent humanitarian efforts and immediate political, economic and social priorities, as well as strategies for peace in the medium to longer-term. Through consultations predominantly with Sudanese stakeholders, we have sought to generate meaningful analysis and practical recommendations that can guide policies and practice in ongoing and future aid response, political engagement and recovery efforts. The consultations have not only highlighted the environmental dimensions of these challenges but have also built the case for inclusive approaches that prioritise sustainable, community-centred solutions, ensuring that environmental considerations are integral to conflict-sensitive aid, recovery and peacebuilding strategies in Sudan.

This research is not exhaustive. However, it aims to be a useful resource in setting out overarching trends and considerations in an accessible way for the wide range of individuals, organisations and institutions engaging on Sudan. We hope it will lead to further discussion, research and impactful engagement. Most importantly, we aim to encourage listening to, and deeply engaging with, Sudanese stakeholders to ensure that future efforts are centred around their expertise and ownership and are as informed, inclusive and as effective as possible.

3. Methodology

This research was conducted by the Conflict and Environment Observatory (CEOBS) in collaboration with the Conflict Sensitivity Facility (CSF) using qualitative methods, comprising a literature review, analysis of primary sources and interviews. The literature review, which included academic sources as well as reports from international organisations and NGOs, focused on long-term local and national conflict dynamics, the relationship of conflict parties with natural resources and environment, and the involvement of international actors. Primary sources included previous peace agreements and media articles.

At the heart of the report are online conversations with representatives of academia, civil society and research institutions, which were carried out between September 2024 and January 2025. A total of 19 semi-structured interviews were conducted with experts in the field of resource governance, climate adaptation, climate security, food security, conflict resolution and peace mediation. Additionally, a roundtable discussion was convened in Arabic for Sudanese civil society to discuss their perspectives across environmental and peacebuilding expertise, hear their insights on specific needs and explore a vision for a peaceful and sustainable future. Finally, a focus group discussion was held to critically reflect on and verify our findings. The findings were synthesised by triangulating insights from the literature review, interviews and focus group discussions to ensure a comprehensive understanding of the issues from multiple perspectives.

4. Conflict context

The legacy of Egyptian and British colonial rule left Sudan with flawed governance structures.¹ After gaining independence in 1956, Sudan's history has been characterised by military rule and conflict. Continuing instability and ethnic and religious divisions fuelled two devastating civil wars, the second of which (1983–2005) eventually resulted in the secession of South Sudan in 2011. Sudan endured 30 years of oppressive dictatorship under Omar al-Bashir and the National Congress Party (NCP), who seized power in a 1989 coup. This regime was marked by political repression, human rights abuses, and the 2003 Darfur conflict. During the conflict in Darfur, the regime funded and armed ethnic militia known as Janjaweed from Arab-identifying groups who committed mass killings and sexual violence against non-Arab communities and were later institutionalised by the creation of the Rapid Support Forces (RSF).²

In April 2019, after months of mass protests against al-Bashir's regime, he was removed by Sudan's official army, the Sudanese Armed Forces (SAF), and the RSF.³ This led to the formation of a transitional government combining military and civilian leadership. However, a military coup in October 2021 ousted Prime Minister Abdalla Hamdok and placed Sudan under full military rule, with General Abdel Fattah al-Burhan (SAF) as chair and Mohamed 'Hemedti' Dagalo (RSF) as co-chair in the Sovereign Council.⁴ Although they initially promised to continue the transitional process in December 2022, tensions between the SAF and RSF escalated.⁵ On 15 April 2023, a full-scale war broke out between the SAF and RSF, with intense fighting erupting in Khartoum and spreading across Sudan.⁶

Since its outbreak, the consequences of the war have been described as "one of the worst humanitarian nightmares in recent history".⁷ According to reports in 2025, the situation in Sudan has resulted in the largest and most devastating humanitarian crisis in the world today, with the highest number of people in humanitarian need (over 30 million people) and the highest number of internally displaced in the world (more than 12 million forcibly displaced as a result of the violence).⁸ Basic services, including water, healthcare and electricity have collapsed, and critical infrastructure has been badly damaged. The war has resulted in extreme levels of violence, with civilians targeted and subject to horrific human rights abuses. Women and girls have borne the brunt of the catastrophic impact of the conflict, including sexual and gender-based violence.⁹ As of mid-2025, several mediation efforts have failed to result in a ceasefire, the dynamics are increasingly fragmented and the conflict risks becoming increasingly regionalised.

¹ Tchier, A.E.Y. and Zabala, L.M. (2024, July 31)

² ACAPS. (2023, October); CPA. (2024, October 3)

³ CPA. (2024, October 3)

⁴ ACAPS. (2023, October)

⁵ ACLED. (2024, April 14)

⁶ ACAPS. (2023, October)

⁷ CPA. (2024, October 3)

⁸ UN News. (2025, February 14)

⁹ UN OHCHR. (2025, March 7)

Examples of conflict-linked environmental incidents, trends and impacts in Sudan

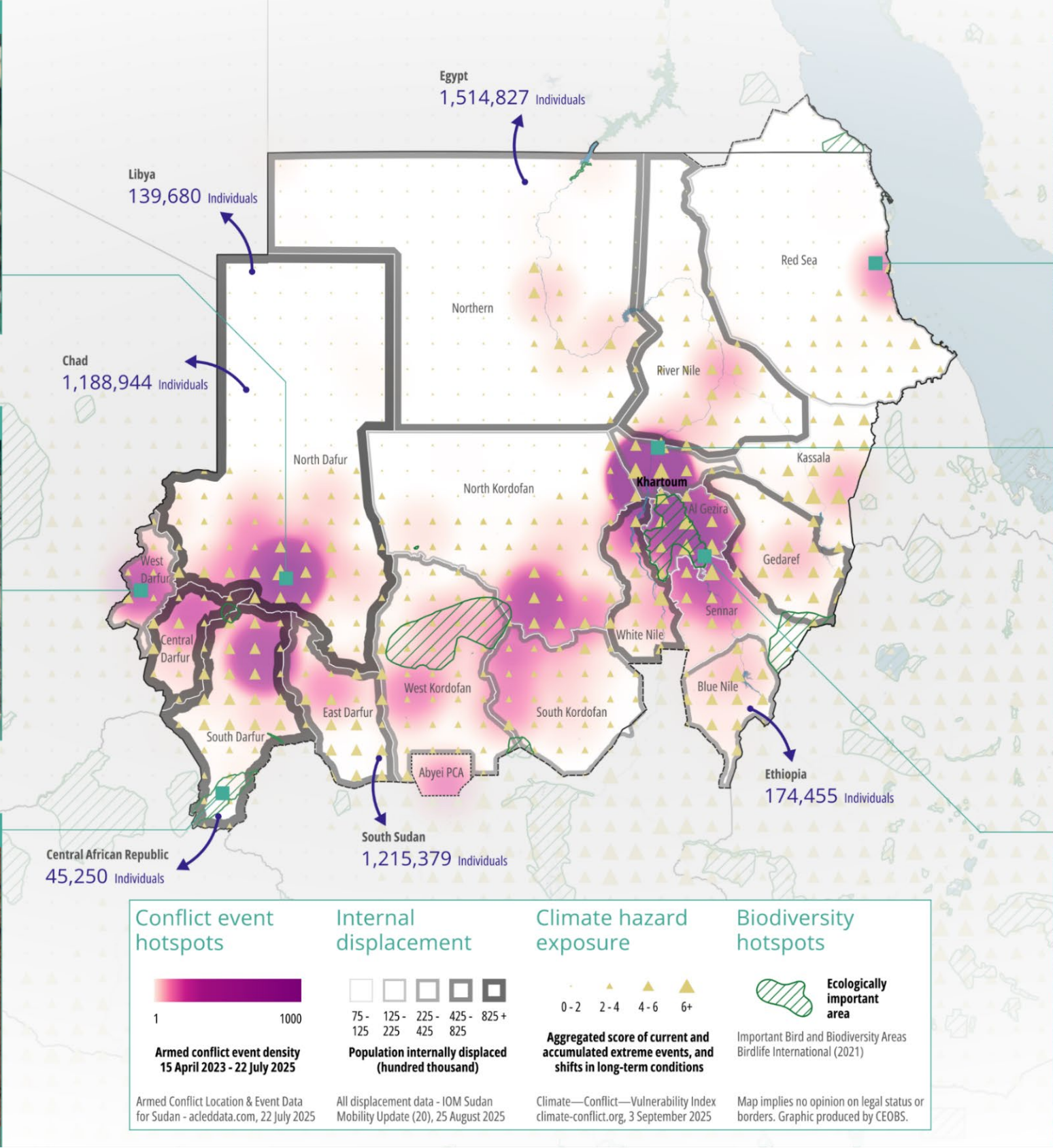
Water & energy damage: Al Fashir



Biodiversity: Forest loss, Geneina



Resources: Agbash mine



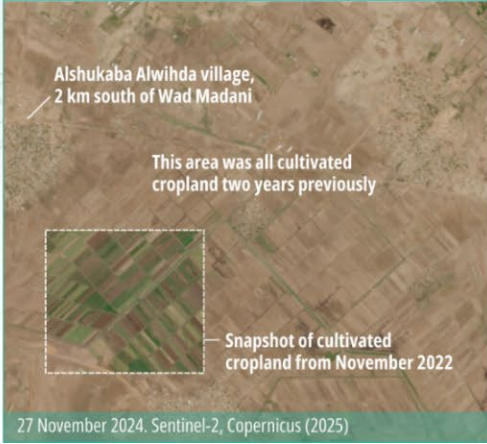
Climate: Arba'at dam collapse



Pollution: Al Jili Refinery fires



Livelihoods: Al Gezira crop loss



5. The environment and conflict in Sudan

Understanding how the environment interacts with Sudan's conflict dynamics and how the environment and natural resources are intertwined with social, economic and political systems is essential to enable a deeper understanding of conflict and peace in Sudan.

This section provides insights into some of the manifold ways through which the environment and natural resources link to conflict in Sudan. These relationships exist across various scales, from local communities to national structures, and to regional and international interests. Much of the focus at the local level tends to be on the implications for livelihoods and natural resource management, including the legacy of previous policies and weak governance, the effects of climate change, the direct impact of the current war, and the long-term impact of environmental mismanagement and degradation on livelihoods and peaceful relationships.

At the national level, the control of high-value resources such as oil and gold are major components of the political economy and long-term conflict drivers, continuing to feature strongly in the strategies of conflict actors. National governance and policies have been influenced by elite interests, weak institutions and centre-periphery dynamics. International interests in Sudan's natural resources have also played an important role in the engagement of external actors.

A full examination all of these relationships in detail would exceed the scope of this report. However, by outlining the main trends of the intersection between the environment and conflict in this section, we emphasise the importance for humanitarian response and aid approaches, political engagement and peace strategies to be sensitive to these factors.

5.1 Localised conflict: Livelihoods under threat

There is a substantial body of research and learning from practice¹⁰ that provides important contextualised understanding of how people's livelihoods are deeply intertwined with environmental and social factors in Sudan and the consequences of shocks and stresses including conflict. Farming and pastoralist livelihood systems evolve in accordance with the changing environment and broader societal conditions. This is highly context specific – Sudan's ecosystems and environmental conditions are diverse, as are its more than 500 ethnic groups. In addition, multiple studies have emphasised the need to understand the gendered dimensions of livelihoods, for example, in areas such as North Darfur it is the women who often carry the greatest work burden in both farming and nomadic communities.¹¹ Increased pressures on natural resources contribute to strained relationships and can increase the likelihood of conflict, as well as exacerbating inequality and marginalisation. For example, women are heavily reliant on natural resources and play a crucial role in natural resource management yet often lack access to land ownership and decision-making power.¹² Yet the ability to sustain and adapt these relationships may also be at the heart of community resilience and social protection during times of crisis. Furthermore, local contexts are not isolated – besides interconnected social relationships and systems across Sudan, local, national and regional levels are connected by climate change, governance and political interests.

Rural livelihoods are facing increasing pressure because of diminishing access to the natural resources that support them, including water and land. For a population like Sudan's, where

¹⁰ For example, via the Taadoud Transition to Development Project, which was a programme that promoted resilient livelihoods across all five states in Darfur, implemented by a consortium of six NGOs. More information and various useful briefings are available [here](#).

¹¹ Young, H. and Ismail, M.A. (2019, April 4)

¹² UN Women, UNEP, PBSO, UNDP (2017, October 2)

80% relies on agriculture and pastoralism, this is particularly worrying.¹³ From an urban perspective, environmental pressures in urban centres have increased over many years. This is due to significant urban expansion and unsustainable growth with increased vulnerability to future hazards and shocks,¹⁴ often exacerbated by a lack of clarity over land allocation processes worsened by mismanagement, corruption and rising inequality. Urban livelihoods have been heavily disrupted by the conflict, with severe disruptions to basic services, for example access to piped water dropped by more than 20% while electricity reliability has worsened for nearly 90% of households that previously had access.¹⁵ The environmental consequences of war in urban areas has resulted in an urgent need for infrastructure rehabilitation.

This section examines how the legacy of weak governance and national policies, intensifying climate stresses and the environmental consequences of war can aggravate unaddressed grievances, tensions and violence at the local level.

5.1.1 The legacy of weak governance and national policies

While traditional rural livelihood systems of pastoralism and farming have co-evolved over centuries and in theory should continue to be an advantage to communities adapting to conditions of extreme environmental variability – including the consequences of climate change – they have been undermined by national policies, and weak governance and accountability. One of the most impactful examples of this was the 1970s Unregistered Lands Act, which transferred ownership of all unregistered land to the state. This included lands held by local communities who, despite having lived on the land for generations, never had formal ownership. The 1984 Civil Transactions Act granted communities usufructuary rights, while ownership remained with the state. In 2015, the Range and Pasture Law authorised the state to expand or limit the right to manage rangelands for communities.

Policies such as the abolition of the Native Administrations (which happened between 1971 and 1981 as part of an agenda to ‘modernise’ governance by replacing traditional authorities with administrative councils) either left a vacuum or created parallel management structures for land tenure, ultimately undermining traditional communal land governance.¹⁶ Detrimental to local communities, land expropriation benefited private national and international investors as part of Sudan’s developmental ambitions to be a regional breadbasket, and was done with the support of global economic actors such as the World Bank.¹⁷ The policies paved the way for the large-scale expansion of mechanised agriculture and mining, which encroached on local smallholder farmers’ and pastoralists’ lands, ultimately undermining their livelihoods and facilitating land grabbing. There are strongly gendered dimensions to this, and women’s land rights have long been highly insecure.¹⁸ The declining rule of law amid Sudan’s current conflict has further reduced accountability for land.¹⁹ The expropriated land has often been degraded by unsustainable agricultural practices that increase desertification.

Reflections on these government failures identified a disconnect and lack of dialogue between state authorities and local communities, a gap that increases tensions and hinders effective resource management. As one interviewee noted, “The working plan does not care about a

¹³ [De Coning, C., and Krampe, F. \(2022, May\)](#)

¹⁴ [Pantuliano, S., Buchanan-Smith, M., Metcalfe, V., Pavanello, S. and Martin, E. \(2011, January 2\)](#)

¹⁵ [IFPRI and UNDP \(2024, November 12\)](#)

¹⁶ [Suliman, H. M., Omar Adam, Y.O. and Naile, S. \(2024, June 26\)](#)

¹⁷ [Gari, H. \(2018\)](#)

¹⁸ [Rahma, F.M.A.M., Mustafa, S.K.E.A., and Faragallah, O.M.A. \(2024, July\)](#)

¹⁹ [Suliman, H. \(2024\)](#)

participatory approach or involvement of local people. Experts in Khartoum's offices do not go back to the local communities to discuss issues with them or hear what they would benefit from. The lack of consultation can even fuel ethnic tensions. That was the starting point of what we see happening now."

The exploitative governance and marginalisation of local actors have many consequences, including social fragmentation. The reduction of productive land for local communities and the weakening of traditional management structures undermined rural Sudanese livelihoods, exacerbating vulnerabilities and insecurity, and increasing the risk of disputes and conflict.

The compound consequences of the long-term weakening of traditional structures through unsustainable and unjust land-use policies, through climate change stresses, and through the environmental and humanitarian impacts of armed conflict mean that the sustainable management of Sudan's environment has been undermined for decades. This has negatively impacted the livelihoods of a large part of its population. One interviewee vividly described this trend: *"What we always first ask farmers, rural people, especially slightly older ones, is 'what did this area look like when you were young?'. Farmers tend to be quite old, so they remember and the stories that you get, the kind of visual that is created from them, is just so alien and outside of what you would ever even imagine possible. They understand how their area has been destroyed. They understand what impact that's had on their lives, they understand the impact that's had on their children's lives. They want to see change and improvement on that."*

5.1.2 Climate stresses

Sudan is one of the world's most climate-vulnerable countries.²⁰ Temperatures have risen significantly in the past decades and are projected to increase further in the coming years, leading to lower overall rainfall and more frequent and intense extreme weather events, such as droughts and floods. The environmental consequences are immense, including desertification, shorter growing seasons, tree cover loss, soil erosion and declining agricultural productivity.²¹ The speed and severity of climate change is heightening food insecurity and poverty, often exceeding communities' adaptive capacities.²² To cope with the increased environmental and economic stresses, some communities have had to resort to maladaptive and environmentally harmful survival strategies that can further degrade the environment, such as deforestation, mining²³ or monocropping. The effects of climate change disproportionately affect women, rendering them more vulnerable through water and food insecurity, poverty and displacement, in turn exacerbating inequalities and increasing their exposure to sexual and gender-based violence.²⁴

In spite of the severe impacts of climate change on local systems, it would be simplistic and potentially dangerous to claim climate change is the sole or direct cause of conflict in Sudan.²⁵ While the effects of climate change may exacerbate pressures and contribute to the risk of conflict, this is not inevitable²⁶ and political, economic and social factors must strongly inform an understanding of conflict drivers. In fact, some have pointed out how overly simplistic

²⁰ [ND-GAIN Scores for 2022](#)

²¹ [Sax, N., Hassan, G. M., Abdi, A. N., Madurga-Lopez, I., Carneiro, B., Liebig, T., Läderach, P., and Pacillo, G. \(2023\)](#)

²² [De Coning, C., and Krampe, F. \(2022\)](#)

²³ [Sax, N., Hassan, G. M., Abdi, A. N., Madurga-Lopez, I., Carneiro, B., Liebig, T., Läderach, P., and Pacillo, G. \(2023\)](#)

²⁴ [AWC and UN WOMEN \(2023, September\)](#)

²⁵ [Satti, H.-A., and Sulieman, H. \(2022, March 31\)](#)

²⁶ [Medina, L., Pacillo, G., Läderach, P., Sieber, S., and Bonatti, M. \(2025\)](#)

climate-conflict narratives may also have been instrumentalised at times to divert attention from the mismanagement and exploitation of resources by Sudanese political elites.²⁷

The relationship between climate change, conflict and security in Sudan is complex and understanding the nuances of these interactions also helps shed light on wider intertwined relationships of historic marginalisation, political interests and the intricacies of localised conflict dynamics. Climate stresses can play a role in contributing to heightened vulnerability and increased pressures on natural resource management, while violent conflict and instability contribute towards heightening vulnerability to climatic hazards. In the current context, where climate stresses may intersect with the immense pressures of extreme insecurity, famine and displacement, and alongside increased fragmentation amid efforts to instrumentalise localised narratives of ethnic divisions, it is particularly important that interventions are informed by both climate and conflict sensitivity.

There have been national policies concerning climate commitments, which included al-Bashir National Adaptation Plan, alongside other seemingly tokenistic climate initiatives. These changed little and for years those in government failed to respond to the accumulating stresses of climate change. Instead, its policies contributed to restricting the ability of communities to adapt and strengthen their resilience.²⁸ In 2019, the transitional government provided new impetus to addressing the climate crisis,²⁹ but the 2023 war and resulting humanitarian crisis brought a halt to this momentum, setting the country back years in terms of adaptation.

Sudan faces the same challenges as other climate-vulnerable contexts that are also experiencing armed violence. The global climate action toolbox has tended to rely on top-down approaches. This is particularly true for climate finance initiatives, which are typically highly reliant on state institutions and government leadership or cooperation.³⁰ This can leave little space for adaptation projects in unstable contexts where national institutions have all but collapsed, meaning that fragile states are ‘so often forgotten by climate action’,³¹ despite the fact that the cost of inaction in such contexts will only continue to rise.³²

Nevertheless, this research process also identified many examples of positive interventions based on the long-term experience of resilience and livelihoods programmes in Sudan. Indeed many Sudanese civil society organisations, specialists and scientists – including many female experts and leaders – remain focused on the data, awareness-raising and policy development needed to integrate climate-informed responses into humanitarian, recovery and peacebuilding programming. Combined approaches to reducing conflict risk and shoring up climate resilience and adaptation can inform both short- and long-term aid, political and peace strategies. Critically, competition and conflict are not inevitable consequences of the confluence of climate stresses and fragility, but also present opportunities for cooperation.

5.1.3 The environmental consequences of the war

Although research to date has been limited, the available data indicates that Sudan’s conflict is having a severe impact on the environment, through both direct and indirect pathways, threatening public health and undermining livelihoods.³³

²⁷ [Verhoeven, H. \(2024, March 11\)](#)

²⁸ [Satti, H.-A., and Sulieman, H. \(2022, March 31\)](#)

²⁹ [Yassin, L. \(2022, September 7\)](#)

³⁰ [Chambers, J. and Kyed, H. M. \(2024, May 22\)](#)

³¹ [Farand, C. \(2025, March 18\)](#)

³² [Grayson, C.-L. and Khouzam, A. \(2024, November 12\)](#)

³³ [CEOBS \(2025, May 21\)](#)

Direct damage to industrial, urban and critical infrastructure has generated conflict pollution, contaminating air, water and soils. Research undertaken by CEOBS has documented pollution risks in Khartoum State, including building debris, discharges from damaged energy, industrial and transport facilities and the reverberating impact from the collapse of solid waste management systems. In Khartoum, and some other areas, there are also concerns over exposures from polychlorinated biphenyls. These highly toxic and persistent chemicals are present in some of the oils used in the transformers of electricity substations. Other toxic exposures include the risks from the stores of hazardous pesticides in neighbouring Al Jazira State. Military-origin pollutants are likely present in the damaged military facilities in urban areas that are co-mingled with residential areas.

Impaired maintenance and military conduct are contributing to an increasing threat of environmental emergencies resulting from damage to dams and other infrastructure that can become hazardous as a result of attacks. In August 2024 the Arba'at Dam near Port Sudan collapsed with serious humanitarian and environmental consequences, and there have been ongoing concerns over the safety of the larger Jebel Aulia Dam near Khartoum.³⁴ The widespread presence of mines and explosive remnants of war will place a long-term burden on communities by preventing access to land and water resources. This can have a disproportionate impact on women, who can face increased risk of physical violence when travelling longer routes for water, fuel and food.

Our interviewees highlighted a number of concerns linked to the loss of environmental governance. Poor or non-existent waste infrastructure represents a major health hazard, and there were similar fears over the presence of corpses in the streets – although international advice is that the bodies of people who have died following wounds sustained in an armed conflict are unlikely to pose a health danger to communities.³⁵

The conflict has substantially impacted what environmental governance there was in Sudan, preventing research, redirecting resources and leading to a loss of expertise – this will have consequences for all components of Sudan's environment at a time when many of them are under acute pressure. Some environmental civil society organisations – including women-led and youth-led organisations – that previously closely followed environmental issues have expanded their mandates to be part of the locally led response to the crisis. This shift recognises the scale of chronic humanitarian and development needs, as well as the deprioritisation of consideration or funding for environmental or climate change initiatives. At the same time, they have often sought to continue to incorporate environmental issues and signal intention to return to this focus in the future.

Internal displacement has shifted patterns of environmental pressure, with over 10 million internally displaced people in Sudan as of July 2025. Unsustainable coping strategies can increase levels of pollution and resource degradation at the local level, and increase pressures on host communities.³⁶ Confronted with poverty and energy shortages, people's reliance on forest resources for firewood or charcoal has spiralled, further contributing to Sudan's deforestation rate of 2.4%, which was already one of the highest among developing countries.³⁷ Deforestation not only weakens the resource base for communities, but also contributes to land degradation, impacts water tables and causes losses in biodiversity. As one interviewee observed: "The forest is the most affected sector in war."

³⁴ IHE Delft. (2024, November 12)

³⁵ ICRC, IFRC, and WHO. (2023, September 15)

³⁶ Sax, N., Hassan, G. M., Abdi, A. N., Madurga-Lopez, I., Carneiro, B., Liebig, T., Läderach, P., and Pacillo, G. (2023)

³⁷ De Coning, C., and Krampe, F. (2022)

Radom National Park in South Darfur is about the same size as Lebanon and one of the oldest and largest protected areas in Sudan. One interviewee explained how it is experiencing acute biodiversity loss, not because of direct violence, but due to the erosion of its administrative capacity. Nationally, a lack of oversight and the war's political economy have facilitated environmentally damaging activities, such as gold mining, which pollutes the environment through the use of chemicals like cyanide, mercury and thiourea.³⁸

While the true extent of the environmental damage wrought to date remains unclear it is already apparent that its consequences will continue to impact Sudan's people and environment for decades. This will have deep repercussions in both the short term, affecting areas such as food systems and health, and also for the longer-term prospects for recovery, and it is critical that the environment is fully addressed at all stages of Sudan's recovery, starting today.

5.1.4 The aid sector and environmental degradation

The way the aid response is delivered also risks damaging the environment and undermining the relationships that sustain peaceful and natural resource management. The aid response has a substantial environmental footprint, and a key conflict sensitivity consideration is to minimise contributing to environmental damage and climate change, and to maximise contributions to environmental sustainability. Examples of risks include placing additional stress on local natural resources, the reliance on non-renewable energy, the generation of non-biodegradable pollution, such as single-use plastics and the carbon footprint of transport.

There has been some focus on this historically in Sudan; for example, many years of experience in Darfur raised important questions and provided lessons around wider relief practice and its impact on the environment.³⁹ While there may be a tendency for such issues to be temporarily deprioritised during times of immediate crisis, the longer-term implications have been clearly demonstrated and become even more relevant during a multi-year protracted response. Furthermore, Sudan's diverse and challenging environmental context requires a mix of skills. For example, in Darfur, an area characterised by resource scarcity and variability, those working in drought response needed to merge approaches with those experienced in addressing conflict.⁴⁰

Rather than being siloed into sector- or cluster-specific approaches, the environment needs to be integrated holistically. There is a strong precedent for this in Sudan, particularly from 2017 when there was a dedicated effort to mainstream environmental best practice and resilience-building into humanitarian programming. This was based on joint engagement between the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and the United Nations Environment Programme (UNEP), and dedicated support from the UK's Department for International Development (DfID). An environment marker was included in the 2017 Sudan Humanitarian Fund programme manual and its use was made mandatory. This was used to assess the environmental impact of the humanitarian response and to demonstrate a basic level of environmental mitigation (see section 6.2.3). However, in the current context there appears to be little reference to this approach.

³⁸ [Abdelrahman, M. S. \(2023, July\)](#)

³⁹ [Tearfund \(2007\)](#) – See for example the Sustainable Relief Management framework here, a 'do-no-harm' approach to resolving the humanitarian and environmental crisis in Darfur. [Bromwich, B. \(2008, July 1\)](#) also provides a useful summary.

⁴⁰ Ibid.

5.1.5 Compound environmental stress and localised conflict

Armed conflict damages infrastructure, prevents people from cultivating their land or drives them from it, limits their mobility and access to resources, and destroys their harvests.⁴¹ All of this contributes to heightened vulnerability, leaving communities further exposed to severe humanitarian need, pressures that are most acutely felt in Sudan's rural areas.

These pressures typically increase as the war continues, with severe and prolonged humanitarian needs, societal stress and trauma contributing to the deepening of grievances. Such pressures undermine the structures and relationships that sustain peaceful coexistence and interdependence between communities and local groups. They can also help to encourage military mobilisation, particularly among young people.⁴² Joining armed groups or the military holds the promise of income, and, with 46.5% of Sudanese living in poverty, many are under severe economic pressure.⁴³ There is a likelihood of increasing fragmentation as military and political elites manipulate ethnic divisions for strategic gain, alongside the growing prevalence of hate speech and disinformation.⁴⁴

The compound impact of conflict and environmental degradation places heightened burdens upon communities and increases the risk of conflict. Yet this is not a foregone conclusion, and Sudan's history has also demonstrated that there have been examples of changes and pressures leading to strengthened or sustained relationships of peace as a means to survive and adapt. This complex interplay of economic, social, political and environmental factors is not easily captured. But as one interviewee put it: "Climate is driving the conflict. But if you don't address the underlying socio-economic roots of conflict, calling it a climate conflict or putting the blame outside of governance is a dangerous thing to do and it puts the issue in the wrong place entirely."

As this section has demonstrated, excluding or overlooking the environmental dimensions can result in a failure to understand their integral role in local conflict dynamics. As will be explored in section 6.4, strategies for peace benefit from addressing environmental sustainability alongside socio-economic and governance challenges.

5.2 National and international conflict drivers: Natural resources and the political economy of conflict

As explored in the previous section, conflict dynamics and intertwined environmental factors intersect across local, national and international levels. Competition for natural resources linked to national political and economic interests has played an important role in driving violence and conflict at a national level. In addition, regional and international interests in Sudan's environment and resources have also influenced foreign engagement in the country.

5.2.1 The role of natural resources in the political economy of conflict

High-value natural resources play a key role in the political economy of Sudan and therefore in its national conflict dynamics. 'High-value' natural resources refer to commodities like oil, gold, timber, and certain minerals which, when extracted and properly managed, can generate significant revenue for a country, but can also be a source of conflict if not managed sustainably due to their high market value and potential for exploitation. Sudan is rich in natural resources, and its history is characterised by struggles over their control and a relationship with conflict

⁴¹ [Wahlstedt, E., and Sulieman, H.M. \(2024\)](#)

⁴² [Sulieman, H. \(2024\)](#)

⁴³ [Sax, N., Hassan, G. M., Abdi, A. N., Madurga-Lopez, I., Carneiro, B., Liebig, T., Läderach, P., and Pacillo, G. \(2023\)](#)

⁴⁴ [Mohammed, W. \(2025\)](#)

dating back decades – to the war that led to South Sudan’s independence, to the colonial era and beyond. This section focuses on oil and gold, which have been prominent areas of interest.

Interviewees argued that Khartoum’s powerful elites have over-exploited natural resources, particularly in areas often referred to as Sudan’s peripheries, and used their proceeds to arm troops, form alliances and wage war. As one interviewee shared, “They are controlling the natural resources that do not belong to them, but to citizens.” The exploitation of natural resources has been used to fund conflict, while competition to control them has fuelled it. Elite capture of oil and gold has been a recurrent trend since the discovery of these resources.

From the early 2000s, an oil boom paved the way for the financing of conflict via the deployment of paramilitaries in Sudan’s peripheries. The widespread killings, violence against civilians and ethnic cleansing in oil-producing areas in Sudan – as the ruling authorities sought to consolidate control over these areas – have been well documented.^{45, 46} This continued after the political transition in 2019, whereby elite capture and the exploitation of oil and gold to fund military and political interests continued.

The ‘Oil War’: International oil companies and war in Sudan

The completion of the first oil pipeline from Southern Sudan oil fields to the Red Sea and subsequent export of crude oil from Sudan in August 1999 marked a turning point in Sudan’s complex civil war. Oil was seen both as a main objective of conflict and an obstacle to peace, playing such a significant role that some described the ongoing war as ‘the oil war’.⁴⁷ Oil revenues funded weapons and ammunition; the location of oil blocks held under concessions affected the geography of war as the civilian population was subject to further violence; and the disruption of its flow – whether deliberate as a political act or due to destruction during armed conflict – led to further tensions with a knock-on effect on poverty and humanitarian needs. Oil exploitation by foreign companies has been linked to forced displacement, an escalation in conflict and increased human rights abuses.

After the outbreak of the current conflict in April 2023, control of oil-rich areas and oil fields, refineries, pumping stations and parts of the export pipeline from South Sudan became a critical consideration in military strategies. For example, at the beginning of the war, the SAF and RSF avoided attacking the Khartoum refinery, but within a few months, according to reports, both targeted each other’s revenues and access, resulting in severe damage to the facility and the surrounding environment.⁴⁷ Oil extraction fields in Kordofan became hot spots for conflict between the RSF and SAF. There has also been pressure on neighbouring South Sudan given that oil had accounted for at least 85% of its national revenue before damage and disrepair due to the war⁴⁸ and the knock-on effect of the severe economic consequences on its own stability.

Described by some as the ‘resource re-curse’,⁴⁹ gold became the new pillar of Sudan’s economy after it lost three quarters of its oil properties with the secession of South Sudan in 2011.⁵⁰ From January to October 2024, Sudan officially made USD \$1.5 billion from gold

⁴⁵ [STPT and New Features Multimedia. \(2024, July\)](#)

⁴⁶ See PAX [Unpaid Debt](#) for long-term work building on the work of the European Coalition on Oil in Sudan (established in 2001), which PAX has sustained in more recent years.

⁴⁷ [HRW. \(2003\)](#)

⁴⁷ [Ibid.](#)

⁴⁸ [International Crisis Group. \(2024, May 15\)](#)

⁴⁹ [Patey, L. \(2024, August 31\)](#)

⁵⁰ [Abdelrahman, M.S. \(2023, July\)](#)

exports⁵¹, though the actual production and export is thought to be higher due to smuggling and informal trade. Like oil, gold funds armed conflict in Sudan. Because the extraction of gold requires less infrastructure than oil, a range of conflict actors in Sudan have been able to access and benefit from its revenues. The evolving gold economy intersects with broader conflict dynamics, making it a key factor in Sudan's current war.

Competition over gold has been posited as a prominent conflict driver in the war that erupted in April 2023, with fighting over access to mines such as those at Jebel Amer. Because of the high proportion of informal activity, Sudan's gold sector remains opaque, and illegal gold mining and trading are also thought to have influenced the nature of foreign interest in the conflict.

5.2.2 Government policies and elite capture

Sustaining control over high-value natural resources has long been a key factor in political strategies. Sudan's internal fragmentation is part of its colonial legacy, and since independence it has been afflicted by regional divides and centre-periphery power disparities.⁵² The centre has continuously introduced policies to retain dominance over exploitative industries, for instance the establishment of the Military Economic Corporation as an umbrella for military-economic businesses strengthened elite access to resources.⁵³ Elite capture and control of these resources have been a constant for decades, which in turn has influenced political engagement and policies to sustain control.

The oil and gold sectors have been characterised by unofficial extraction, off-the-books deals, and corruption. Transparency and oversight of these sectors are virtually non-existent; according to analysis, from 2012 to 2018, at least half of all oil exports were off-the-books,⁵⁴ and it is estimated that before the war between 50–80% of Sudan's gold was smuggled rather than exported through official procedures and channels.⁵⁵ During the transitional period, efforts to dissolve kleptocratic structures are thought to have ultimately contributed to the 2021 coup, and reports have framed the linkages between oil and fuel companies, security actors, officials and their affiliates as a 'military industrial complex'.⁵⁶ Additionally, Sudan's elites maintain strong ties to mining interests in Western countries.⁵⁷

The oil industry in Sudan and South Sudan has been characterised by weak environmental oversight and regulatory enforcement. This has impacted communities and the environment during exploration and production, and led to serious water and soil pollution from spills and poorly maintained infrastructure.^{58,59} Gold mining has been associated with land grabbing, looting, loss of traditional livelihoods, environmental degradation and violence linked to cross-border smuggling.⁶⁰

Natural resources are not a sole driver of armed conflicts but must be factored into considerations of conflict dynamics on local and national scales. Control over high-value natural resources is a key factor driving political and economic interests and can contribute to

⁵¹ [Sudan Tribune. \(2024b, November 21\)](#)

⁵² [Tchie, A.E.Y., and Zabala, L.M. \(2024, July 31\)](#)

⁵³ [Hoffmann, A., and Lanfranchi, G. \(2023, October\)](#)

⁵⁴ [Abdelrahman, M. S. \(2023\); STPT & New Features Multimedia. \(2024, July\)](#)

⁵⁵ [Sudan Tribune. \(2024a, February 13\)](#)

⁵⁶ [STPT & New Features Multimedia. \(2024, July\)](#)

⁵⁷ [Hoffmann, A., and Lanfranchi, G. \(2023, October\)](#)

⁵⁸ [PAX. \(2024, June 4\)](#)

⁵⁹ [Tiitmamer, N. & Kut, K.M.K. \(2021, January 26\)](#)

⁶⁰ [Ilie, E., Salah, M., and Birhanu, T. \(2021\)](#)

fuelling large-scale tensions and determining the capabilities of armed groups in conflict. According to one interviewee: “The fight between RSF and SAF is not about natural resources, but about power. Self-interests and personal benefit play as much a part as weak governance and internal fragmentation. In turn, these self-serving policies spark public discontent and distrust by the population in political leaders as the strain on their livelihoods grows.” Another said: “The problem is not that we don’t have natural resources in Sudan. We have a lot. The issue is how we share it”.

5.2.3 International and regional interest in Sudan’s natural resources

Interest in Sudan’s natural resources has long driven international and regional interests in the country. Besides the interests in oil and gold outlined above, further examples of this include:

- **Land and farming operations:** According to the Land Matrix database, between 2000–2022 Saudi Arabia, the United Arab Emirates (UAE), Qatar and Kuwait acquired some half a million hectares of land in Sudan.⁶¹ ‘Land enclosures’,⁶² or the practice of purchasing agricultural land abroad, became increasingly prominent as a means for Gulf economies to tackle their dependency on countries such as Sudan and Egypt for food, alongside importing raw commodities while exporting the refined products. However, the consequences of such practices on a country like Sudan can be detrimental. Such consequences include severe food insecurity, high commodity prices and a reliance on government food subsidies, not to mention the ecological and social consequences of large-scale intensive agriculture. Land grabbing has historically been a significant conflict driver, the risks of which are likely to become more severe.⁶³ This dependence on Sudan’s land also incentivises substantial interests in Sudan’s politics and conflict dynamics.
- **Livestock:** Livestock exports are a fundamental component of Sudan’s economy, with Saudi Arabia and Egypt the primary import markets. A 2024 report found that livestock exports in 2023 had increased dramatically compared to 2022 and analysed how control of this sector affects and serves the interests of the key conflict actors in Sudan.⁶⁴
- **Red Sea:** Several international and regional actors have been linked to ambitions to control parts of Sudan’s Red Sea coastline,⁶⁵ which is highly strategic for trade and security.
- **Gum Arabic:** Prior to the war, Sudanese exports accounted for 70% of the global supply of raw Gum Arabic, which is harvested from the Gum acacia *Acacia Senegal*. It is essential for the pharmaceutical, cosmetic, food and beverage industries. However, production has reportedly reduced by 50% due to the ongoing conflict.⁶⁶
- **The Nile:** Sudan’s access to and control over Nile waters remains a critical resource issue, attracting regional interest. Its position between Egypt and Ethiopia in the ongoing Grand Ethiopian Renaissance Dam has complicated Sudan’s ability to assert its water rights.

⁶¹ [Henderson, C. \(2024, Summer\)](#)

⁶² Ibid.

⁶³ [Sulleman, H. \(2024\)](#)

⁶⁴ [Atar Magazine. \(2024, December\)](#)

⁶⁵ [BBC News. \(2025, February 13.\)](#)

⁶⁶ [The Africa Report. \(2024, March 13\)](#)

5.2.4 International economic, political and military ties have the potential to spoil or support peace efforts

Complex internal and external interests are at play in Sudan's conflict, underscoring the need for coordinated, transparent and accountable international engagement in any mediation efforts. A direct relationship has been made between some international and regional interests and both political and military support for belligerents, which has exacerbated the violence. To date international involvement in Sudan's conflict has been characterised by fractured mediation efforts, with a myriad of countries and entities involved. This includes some countries allegedly providing support to the belligerents. Competing foreign interests and rivalries have been counterproductive for a more coordinated approach to negotiations. Meanwhile international bodies have been unable to curb the violence, or to ensure the provision of effective relief to the population.

6. The environment and peace: Immediate and long-term considerations

The previous section demonstrated how environmental factors are intertwined throughout Sudan's economy, politics and conflict. Yet there can be a tendency for environmental considerations to be deprioritised during times of crisis and severe humanitarian need. The consequences of this may mean that short-term damage is amplified, and long-term opportunities are missed. Conflict sensitivity is even more important during times of crisis,⁶⁷ and Sudan's context demonstrates the critical importance of integrating an understanding of how environmental factors interact with conflict dynamics, and of acting to minimise the risk of contributing to further environmental degradation.

Conflict sensitivity offers essential tools and approaches for designing and implementing interventions while navigating the complexity of working in and across diverse and fluid contexts.

At its core, conflict sensitivity is about building an understanding of the context, understanding how an action might interact with that context, and seeking to tailor and adapt that action to achieve the best possible positive impact. Applying conflict sensitivity can help to minimise the risk that initiatives may unintentionally contribute to negative consequences or cause harm. It can also help to identify how an action can support positive results beyond the original intention of the intervention, for example by contributing to social, economic or environmental benefits and strengthening cooperation, social cohesion, gender relations and opportunities for peace.

This section focuses on priorities for promoting the interrelated aspects of the environment and peace. These priorities include: promoting key principles, leveraging conflict-sensitive aid and shoring up key foundations in national-level engagement. The section also explores how environmental and natural resource considerations could inform pathways and strategies for peace. These strategies encompass various scales, ranging from immediate and short-term actions to long-term considerations, and across local, national and international levels. It also identifies strategies to support immediate relief to communities, as well as perspectives on sustainable post-conflict recovery, all of which should be informed by ongoing participatory research.

Violence and armed conflict not only destroy the environment, they also undermine sustainable livelihoods, peaceful natural resource management, biodiversity conservation and climate

⁶⁷ [CSF. \(2021, December 16\)](#)

adaptation. Environmental peacebuilding approaches – whereby management of environmental issues is integrated into and can support conflict prevention, mitigation, resolution and recovery – offer opportunities to inform peacemaking and peacebuilding that address the root causes of conflict and prioritise the connected outcomes of environmental sustainability, social cohesion and resilience to climate shocks. The environment is also key for accountable institutions and the prospect of a renewed social contract between a government and its citizens. As one interviewee noted, “It’s as simple as that, the environment can be a driver for stability.”

6.1 Key principles

The research identified two principles that are particularly critical to informing meaningful engagement on efforts to work at the intersection of these complex issues: centring Sudanese experience and collective action.

Centring Sudanese experience

Failures to consider the needs of local communities and to consult with them have had a detrimental impact on stability and well-being in Sudan – for peace efforts to have meaningful impact, community participation and ownership are vital. This is particularly important given the wealth of traditional, practical and professional expertise among Sudanese civil society, practitioners, technical specialists and academics. While many Sudanese with substantial expertise and skills have left the country due to the war, finding ways to enable this talent, knowledge and leadership to thrive is critical.

Working with civil society and community groups provides important contextual knowledge and understanding of social and environmental relationships in communities. This might include how gender roles change in a post-conflict context,⁶⁸ or how environmental degradation impacts livelihoods and everyday lives. Prioritising Sudanese expertise foregrounds and enables a vast bank of knowledge and experience, in turn helping to support sustainable structures and institutions. Given the pressures of such a volatile and fraught context, the research also reiterated the importance of conflict sensitivity in all peacebuilding initiatives. A lack of contextual understanding might not only render strategies ineffective but also potentially harm communities, existing relationships and peace structures; those most affected have critical insights on impactful approaches and strategies.

The research also revealed clear messages on inclusivity. With nearly 70% of Sudan’s population under 30 years of age,⁶⁹ young people are important agents of change. However, in spite of their engagement during the 2019 revolution and in ongoing humanitarian activities, young people have been historically and structurally excluded from decision-making, leaving them with what one interviewee described as: “A feeling of being instrumentalised. But youth can act as drivers of stability in the community; if you reach them, you reach a whole community.” Future peace strategies must be youth-oriented, recognising their important role in future environmental sustainability.

Women and women’s groups have historically been largely excluded from governance and political processes, and the war has threatened previous progress while also presenting new challenges. The research emphasised the importance of women’s inclusion and leadership in facilitating effective and sustainable outcomes. The range of local responders — including mutual aid groups, community-based organisations, established NGOs and community

⁶⁸ [UN Women. \(2024\)](#)

⁶⁹ [WHO. \(retrieved 2024\)](#)

leaders — who are already providing relief and stability to communities also have an important role to play in peacebuilding processes. Without Sudanese leadership, engagement and inclusivity, peacebuilding strategies and relief initiatives will fall short.

Collective action

There was enthusiasm about the potential for collective action to drive meaningful change. Reflecting upon eroding governance and ongoing violence in Sudan, there was also an acknowledgement of the difficult position civil society currently finds itself in. Environmental organisations in particular face challenges as their work is often deemed unimportant in the face of a humanitarian crisis. “The climate is the last thing on people’s minds in Sudan,” observed one interviewee, “The focus is only on surviving.” Because of this, environmental activities have become fragmented, many organisations have had to cease work, while others have shifted toward responding to humanitarian needs by collaborating with the relief response to provide food, shelter and medical care. Human, financial and technical resources are rapidly diminishing: “The work changed so much since the conflict broke out. It was already difficult in a crumbling setting. How do you do it now that everything broke down?”

That said, the interviews also revealed how environmental civil society had sought to sustain environmental and climate change activities, finding ways to weave them into locally led responses, through activism and advocacy and through continuing to engage in public awareness-raising and monitoring.

Interviewees suggested that collective action could help counter some of the challenges faced, with civil society actors merging forces instead of pushing for change individually: “Under one umbrella, we can unify efforts and funding, and people can work on economic and environmental development.” This approach could help compensate for the lack of capacities and foster meaningful participation and engagement. Beyond the practical dimensions of cooperation on the ground, collective action could help foster a shared vision of what needs to be done, how civil society can best be supported, what help is needed from the international community and what Sudan’s environmental future should look like.

Interviewees felt that actions based on approaches which are inclusive, collective, bottom-up and prioritise genuine participation could provide the most consequential pathways for change. To be effective, strategies should be built on these principles, should centre communities and amplify the existing activities that Sudanese organisations and initiatives have been developing in response to the conflict.

6.2 Integrating the environment into aid in Sudan

Interviewees repeatedly highlighted the need for peacebuilding strategies to address the interplay between climate change, flawed governance and the impacts of the conflict. Aid and resource sectors were identified as areas with opportunities for exploring this.

Humanitarian actors are providing relief in Sudan under intensely challenging circumstances. This section explores: the importance of prioritising localised approaches and inclusivity in aid strategies at this intersection; how mutual aid offers specific opportunities for being responsive to environmental issues and climate change, and; systemic efforts to mitigate environmental damage and integrate environmental sustainability into humanitarian response.

6.2.1 Prioritising localised approaches and inclusivity in response

Local knowledge, structures and experience are fundamental to navigating the specific ways through which these needs intersect across diverse local contexts. Local environmental

knowledge can play a significant role in preventing prolonged harm through environmental destruction; equally a lack of knowledge about the local ecosystem can exacerbate vulnerabilities. For example, one interviewee shared an anecdote about an internally displaced people's camp that was built in a flood-prone area, which was a risk well known to the area's residents, and which would therefore have been preventable with more effective community engagement.

Understanding local historic farmer-herder relationships can help to illustrate conflict risks. Such risks may have emerged due to the volatile conflict context, whether linked to the current war or to longer-term grievances, or to environmental and climate issues, such as climate change leading to flooding and drought, resulting in increased pressures on communities.

Effective local relationships can also help to navigate new changes to the environment, for example, mitigating the effect of increased deforestation due to displacement. This may involve helping to identify and support alternative sources of income and energy or mediating between displaced and host communities to support social protection for the most vulnerable. Several interviewees highlighted the demand for sustainable energy, not only to address energy insecurity and economic development, but also to reduce deforestation rates.

The scale of severe food insecurity also highlights the importance of a response that is informed by both environmental and climate considerations, and which builds on the wealth of livelihoods expertise across Sudan. Support for Sudanese food systems is critical but food production systems vary across Sudan, and each presents unique conflict-sensitivity challenges, as well as opportunities that can either drive conflict or help communities thrive – the diverse livelihood experiences of women across Sudan are a good example of this.⁷⁰ Furthermore, this conflict has exposed the long-term issues at the heart of Sudan's food systems. An effective famine response that also improves conflict and environmental resilience alongside sustainable productivity will be more impactful in the long-term.

Together, this further emphasises the importance of aid strategies that integrate skills and capacities across humanitarian, environmental and conflict expertise, which empower decentralised systems that centre local knowledge and experience, and which provide communities with greater control.

The following steps could contribute towards more holistic and environmentally sensitive aid projects. First, the environment should be considered according to community needs from the outset of project design, with aid strategies addressing not only how humanitarian efforts can become more environmentally sustainable, but also how environmental solutions can both tackle humanitarian challenges and help shore up or support social cohesion, gender inclusion and peace. Second, aid should move beyond diagnostic framings focused on vulnerabilities and instead work towards a positive vision. This approach would also invite a reassessment of the metrics used to determine the success of aid interventions. Instead of relying on short-term evaluations, integrating long-term outcomes – especially those benefiting future generations – could help prioritise environmental sustainability. Third, training on local socio-ecological systems should be provided for foreign aid workers to help boost the expertise in projects.

Interviewees were at pains to point out how challenging it is currently to implement any environmental interventions in Sudan, not least because of severe access constraints and a lack of funding. Many adopted a pragmatic yet opportunistic approach. For example, some,

⁷⁰ [CARE Sudan. \(2023, June 15\)](#)

who worked for established Sudanese civil society organisations that focused on environmental issues before April 2023, described how they had adapted their mandate in response to the overwhelming humanitarian needs to serve as part of the response, but still sought to integrate environmental components and awareness raising into their work even though these specific components were unfunded.

Practices and approaches will need to adapt over time and build on existing knowledge and structures, balancing the short-term considerations of operational realities with opportunities to lay the foundations for longer-term objectives. As one interviewee explained: “Any kind of environmental peacebuilding work needs to be grounded in working with local partners who have a long-term presence... More parallel structures and fragmentation on the ground is unnecessary.”

6.2.2 Mutual aid

Increasing attention has been paid to the critical lifeline that Sudanese responders and mutual aid networks have provided during the current conflict, while access for international aid has been severely constrained. However, with a few exceptions, the ‘traditional’ aid architecture has been slow to adapt to support this response, with more nuanced and conflict-sensitive practical approaches lagging behind. Besides enabling a more effective aid response, centring the experiences of Sudanese first responders and local community groups can also facilitate a response that is better adapted and more responsive to the local environmental context.

Sudanese responders have demonstrated their ability to work fluidly and flexibly according to the diverse needs of communities; their strengths in working across silos – research demonstrates how local aid actors implement humanitarian-development-peace (HDP) nexus approaches –⁷¹ include integrating environmental considerations into their activities. Similarly, women’s response rooms have been responding to specific and often neglected needs of women and girls during the crisis.⁷²

Locally led approaches have helped to enhance resilience and benefit for communities and increase trust. A frequently mentioned example of this was the *Takaya* Sudanese food kitchens, which have been celebrated as an effective and self-organised system that provides regular food to people in need, showcasing the strength of local resilience. Mutual aid efforts, driven by self-organised networks of groups and volunteers, have also been responsive and adaptive to environmental aspects of the crisis, for example facilitating the maintenance and repair of critical water infrastructure.⁷³

Mutual aid has its roots in traditional methods of social mobilisation known as *Nafeer* – building together – which has historically played a significant role during challenging situations. This includes, since the collapse into war, in April 2023, connecting networks of community support during the COVID-19 pandemic, mobilising around the revolution in 2018/19, and flood response, as the example below illustrates.

⁷¹ [Malaz, E. \(2025, January 28\)](#)

⁷² [UN OHCHR \(2025, March 7\)](#)

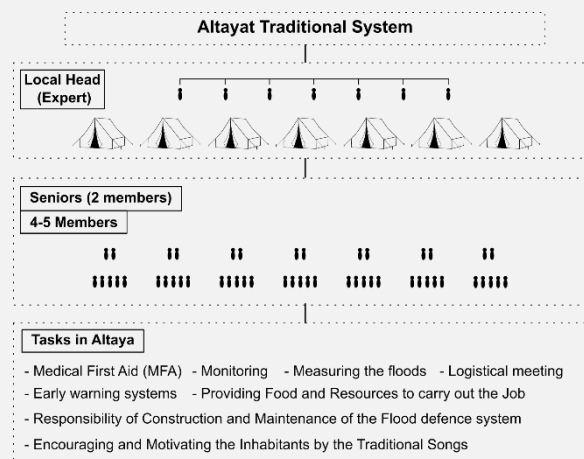
⁷³ [Carstensen, N. and Sebit, L. \(2023, October 11\)](#)

Mutual aid and flood response

During the 2013 floods, a group of youth volunteers organised a community relief initiative framed around *Nafeer* to address a dearth of response from the government. More than 12,000 volunteers registered for the *Nafeer* campaign, with hundreds of members of the diaspora also joining, setting up a social media campaign to facilitate donations from across the globe.

Research on the Tuti Island response – an area located near the confluence of the Blue and White Niles in Khartoum that is severely affected by flooding – demonstrates the significant potential of locally led action in disaster-risk reduction, flood management and increasing resilience, and which was enabled by strong social cohesion and relationships of interdependence. However, this potential has been constrained by a lack of public engagement and participation in flood risk management, the failure of authorities to deliver adequate services and the restrictions placed upon such responses due to its unregistered status (i.e. it is not a ‘formal’ entity which is registered with state bureaucratic structures).

Figure 1: Altayat traditional system for flood response (Tambal et al, 2024)



When the April 2023 conflict broke out, these *Nafeer* committees faced challenges such as limited resources, displacement and disrupted livelihoods but adapted to address urgent needs, distributing resources and providing food and social support. Demonstrating resilience during the crisis, the teams sought to maintain their traditional knowledge systems, preserve their cultural identity and have also contributed to the humanitarian response. This led to a spin-off project (DARAJA-Tuti Island),⁷⁴ which sought to address the increased fragility caused by the armed conflict and the siege on Tuti Island, which blocked humanitarian assistance and external aid, further necessitating the need for community-led action.

6.2.3 Structural and systemic change: Humanitarian good practice and the environment

Assessing how aid affects the environment and identifying more environmentally sustainable approaches is not new in Sudan. It has been the focus of a 2007 Tearfund report, numerous academic studies, some mainstreaming efforts and specific donor interest. Elements of this include, for example:

⁷⁴ [Tambal, S. A. R. M. A., Elsawahli, H. M. H., Ibrahim, E. I. E.I., and Lumbroso, D. \(2024, January 10\)](#)

- Dialogue by the UNOCHA Joint Environment Unit (a global unit between OCHA and UNEP based in Geneva) with in-country counterparts on the mainstreaming of environmental management and resilience-building criteria in humanitarian programming, with increasing prominence in planning processes such as the Humanitarian Response Plan and mention in humanitarian sector meetings;
- The adoption of a mandatory Environment Marker into the Sudan Humanitarian Fund programme manual for implementing partners in 2017, accompanied by training and awareness sessions, with screening and recommendations from UNEP;⁷⁵
- A dedicated Result Group on Environment, Climate Resilience and Disaster Risk Management for the 2018–2021 UN Development Assistance Framework, and the active involvement of UNEP throughout the process;
- Dedicated efforts to inform strategies in the transitional period, for example the 2019 Environment Background Paper prepared for the UN Sudan Poverty Reduction Strategy;
- A £10 million DfID programme called '[ADAPTI](#)' (2015–2021), which sought to increase understanding of climate resilience and environmental management in Sudan, and to ensure integration of best practice throughout delivery, planning and policy, and which played an instrumental role in facilitating this and other efforts.

It was not possible to do a more detailed assessment of the longer-term impact of such initiatives for this research, although there is some evidence available within various programmatic reports. Since the April 2023 war began, there seems to have been little mention of these earlier initiatives, although they may present useful foundations to reenergise the integration of the environment in the humanitarian response. This may also be catalysed by more prominent awareness in global debates, including calls for reviewing and rethinking how humanitarian aid interacts with the environment.⁷⁶

6.3 Local resource management, conflict resolution and social cohesion

While natural resources play a prominent role in local conflict dynamics, they can also be an important component of local peacebuilding. There are many examples of resource management and conflict resolution mechanisms that have existed beyond state systems, but they have been severely weakened by government policies and harmed further by the ongoing conflict. Strengthening or rebuilding these structures emerged as a priority in our interviews as it would help to enhance social cohesion in communities and manage small-scale conflicts. Natural resource management-based interventions can also provide an important means of strengthening women's participation in conflict prevention and resolution, and more generally across society and politics.⁷⁷

Interviewees explained that community values are deeply ingrained in the Sudanese social fabric, and that they dictate that resource management should be managed by and serve the community. Effective resource management is not about keeping communities out of the environment, rather about how communities need to be able to decide for themselves how to manage resources and to benefit from them sustainably. As one interviewee observed, "Foresters assume you need a fence to protect the forest. But you need to make sure people have sustainable access to the forest."

⁷⁵ See an example of the Environment Marker and guidance note [here](#) (UNOCHA, 2016).

⁷⁶ For example, the [Climate and Environment Charter for Humanitarian Organizations](#) aims to provide a global framework for action, offering a set of principles to guide humanitarian action in responses to the climate and environment crises.

⁷⁷ [UNEP](#)

Interviewees stressed that management processes should include all stakeholders and represent everyone's interests, while balancing sustainable resource use. What may drive conflict can also bring opportunities to build peace. For example, lessons can be learnt from past approaches in Darfur, where instead of considering farming and pastoralism as inherently conflicting livelihoods, national NGOs recognised the complementarity between pastoralism and farming within a wider socio-ecological system. Specific examples of how locally led conflict resolution and peacebuilding efforts were deliberate outcomes of shared natural resource management and climate adaptation are outlined below.

Local peace processes and natural resource management

Dialogue over the peaceful sharing of natural resources has long been a bedrock for local peace processes. Examples include:

- **Darfur:** Ongoing local peacebuilding work has generated pragmatic agreements between herder and farmer groups, and across Arab and non-Arab groups, to ensure that crops could be planted and protected to harvest, cattle could move peacefully in search of pasture and water, and food could be bought and sold in markets across the state. This work has continued despite the April 2023 war.
- **Abyei:** Local peacebuilding approaches over many years have helped to manage relationships between the Dinka Ngok and Misseriya, navigating a complex web of local tensions over seasonal migration, high-level pressures due to disputes over the territory and the absence of effective security guarantees.
- **'Climate security' pilots:** 'Gender-responsive approaches to natural resource management for peace in Al Rahad in North Kordofan': a pilot project that focused on natural resource management and governance as an entry point for women's empowerment in peacebuilding.

Peacebuilding strategies and aid efforts would benefit from building on or complementing previous and existing processes. Earlier programmes that were designed from the outset with shared environmental and peacebuilding objectives at their core were highlighted.⁷⁸ Examples of entry points include:

- Increasingly complex disputes between farmers and pastoralists due to the current war, which include increasingly ethnicised narratives;
- Mitigating the risk of conflict between displaced and host communities, both based on newer displacement trends and existing or previous grievances;
- Navigating challenges around environmental damage and destruction resulting from the armed conflict; these can alter relationships between communities but also present opportunities for dialogue and cooperation around collective recovery;
- The ongoing need for climate adaptation and resilience, and how this may be addressed and supported in ways that shore up social cohesion and relationships between groups;
- Shared management of the environment, including protected areas, presenting new and collaborative socio-economic opportunities for communities.

⁷⁸ [Bromwich, B. \(2014\)](#); [UNEP. \(2022, November 4\)](#)

Narratives matter, thus it is important that environmental issues and natural resources are framed in a way that allows for their potential to unify communities as shared concerns rather than presenting them as inevitable sources of conflict.

6.4 Ways forward on national level engagement

Although Sudan's institutions have been barely functioning due to the conflict, political and economic crises, and the loss of experienced civil servants, it is important to prepare for when the situation changes and for decision-makers to be reminded of key principles, lessons and technical expertise. Lessons from earlier policy engagement and the wisdom of Sudanese experts and practitioners could help inform priorities in relation to the environment and climate change from the 'day after', as well as in any engagement opportunities in the interim.

Sudan's extensive experience of high-level peace processes and agreements also demonstrates that if key considerations, like the root causes of conflict, or environmental degradation, are not integrated early on, they may be ignored. Another important lesson is that such agreements are meaningless unless implemented, and that stakeholder groups such as the private sector can be influential. The concept of green recovery post-conflict is a newer one but feels particularly important in Sudan because of the profound relationship between resources and conflict, and because of its high exposure to the impact of the climate crisis.

While such efforts may not be viewed as an immediate priority amid a crisis, a clear majority of interviewees emphasised the importance of starting to lay the groundwork for sustainable and fair outcomes now.

6.4.1 The environment and national policy

Specific areas for policy engagement were identified as important for improving the environmental and livelihood situation nationally. Areas identified included: enhanced environmental protection for fragile ecosystems and biodiversity hotspots; the regulation of mining activities to minimise environmental degradation and to ensure local communities benefit; and improved waste management systems to address pollution and protect water sources. However, implementation is crucial: the weak rule of law means that many existing environmental protection laws are simply ignored.

Land is a key driver of conflict in Sudan, and immediate actions on food security should be paired with long-term strategies for land reform and natural resource management to prevent worsening conflict in the future. The flexibility to enable a diversified approach is also required. For example, financial aid can support people's livelihoods and ensure social security for those who cannot sustain themselves or adapt to new circumstances.

Notably, several interviewees highlighted that policies must go hand in hand with measures that address the root causes of grievances linked to environmental degradation. For instance, addressing poverty could help reduce harmful agricultural practices and deforestation; stronger land tenure regulations could secure land for farmers or pastoralists and reduce tensions; meanwhile improving access to sustainable energy could decrease reliance on charcoal and firewood, and therefore the pressure on forests.

Three challenges were identified for such approaches. First, the low levels of contextual awareness of socio-environmental issues among political decision-makers, which inhibit understanding of the impact of policies on the ground. One interviewee recalled an afforestation project in which recently planted trees were later felled and used for charcoal and

firewood. Second, interviewees called for better coordination between different governance levels and stakeholders, including ministries, research institutions and private actors.

Third, community consultation and participation must be at the centre of new policies. After decades of elite capture, people want to make sure that their interests are represented in future developments. “The work needs to start from the ground,” with consultations beginning at the local level before moving higher. There is a range of tools that could facilitate this, including annual multi-stakeholder convenings, public consultations and submissions, local committees, workshops, councils, and open and inclusive forums. These processes would be greatly helped by creating a neutral environmental body to participate in them, whose remit would be to ensure that environmental interests, so often overlooked in Sudan’s history, are represented.

6.4.2 Integrating the environment from the outset in any steps towards a peace process

Previous peace agreements were perceived to have mainly served as a power-sharing mechanism for political elites and armed groups, neglecting the demands of the Sudanese people and failing to address structural injustices. Nevertheless, overall there was a strong sense that to create a sustainable peace, the environment must be part of the political solution – a process that may result in a formal peace agreement.

Interviewees argued that the environment must be addressed holistically in any such agreement, while prioritising the interests of communities. Establishing effective frameworks for managing high-value resources like oil and gold that form part of the political economy of conflict in Sudan was viewed as a priority, and it was felt that revenues should be used for recovery and communal benefit. Equally important are the capacity, long-term support and political will needed to ensure that any environmental components are effectively implemented, and that leaders and responsible institutions are accountable. The potential role of independent third-party oversight entities should be considered here. Sudanese civil society should be allowed to play a role in supporting the implementation of such provisions, including having access to transparent information.

Alongside weak implementation, past peace agreements have suffered from a lack of inclusivity. Interviewees asserted that: “The agreements need to have ownership from the local levels and local communities.” Bottom-up approaches encourage inclusivity, prioritising community-level decisions that can then scale upward: “The more local the level, the better the engagement and action.”

Reflecting on potential stakeholders for such processes, one answer summarised the opinions of our interviewees: “Everyone is a stakeholder. The environment is a responsibility of everyone.” Groups that were often excluded from such processes but whose involvement is viewed as important included: women; young people; civil society and community-based organisations, including NGOs, activists, neighbourhood groups and community leaders, and; certain ethnic groups or indigenous communities. In addition, the diverse roles of governmental bodies, including local governments and technical departments, private sector actors, and academia and scientists should be reflected, in recognition of the need for technical expertise.

Many interviewees highlighted the importance of accountability, not just around the implementation of a future peace agreement but also with respect to justice for the atrocities and violence that communities have endured during the war, and for the environmental destruction committed by all parties. Such needs may at times conflict with the environmental objectives of a future peace agreement and would need to be navigated sensitively.

Lessons from past peace agreements

Examining Sudan's earlier peace agreements and their implementation can provide valuable insights. Natural resource management and land have featured in every peace agreement, including the Comprehensive Peace Agreement, the Darfur Peace Agreement, the Eastern Sudan Peace Agreement, and the Juba Peace Agreement (JPA). While agreements such as the most recent JPA demonstrated an understanding of the importance of sustainable land and resource management by seeking to address environmental and natural resource challenges in its text, the process was criticised for its top-down approach that centred political objectives, for its insufficient expert consultation and for a failure to address the disconnect between state and local systems, which perpetuate the marginalisation of local communities⁷⁹. Overall, there was a lack of political commitment, implementation and accountability.

Critical questions remain around how to move beyond written agreements to their implementation, and how to ensure civil society's role in sustaining transparency and accountability. "The agreement was just made between politicians. It did not bring interests and objectives and the future of local people in. They are being overlooked. That is why the crisis is not being ended."

6.4.3 Private sector reform

During our consultation the private sector emerged as a critical target for inclusion in peace strategies. Interviewees struggled to imagine a peaceful future for Sudan that did not first involve the dismantling of the kleptocratic structures that have developed around its high-value resources like oil and gold. Reform of its natural resource sector governance was viewed as critical to challenging elite capture and ensuring the public sector and communities benefit from revenues. This is especially crucial given the relationship between armed actors and private sector involvement in natural resource exploitation. Ensuring that the resource sector is governed by civilian representatives instead of security networks and political elites would be another important step.⁷⁹

Discussing whether private sector actors could operate sustainably and for the benefit of communities, it was suggested that they are often overlooked in conversations about environmental and social change in Sudan. The agricultural sector came up significantly as a key entry point in terms of the implications of negative practice at the local-level as well the importance of engaging with private stakeholders within this sector. Another example is in the gold industry, where private sector practice has contributed to polluting the environment through the use of dangerous chemicals like mercury, cyanide and thiourea, threatening human and environmental health.⁸⁰ Targeting the conduct of these entities could improve environmental well-being. Strengthening private sector governance was therefore identified as an important way to reduce damaging practices and increase effective monitoring. Additionally, those we consulted suggested that corporations should re-establish their support through Corporate Social Responsibility funds. As drivers of economic and social development, the private sector is an important entry point for conversations around sustainability, social equity and long-term stability.

Three ideas for private sector engagement emerged. First, private actors should be encouraged to adopt socially and environmentally responsible practices and support the

⁷⁹ [Hoffmann, A., and Lanfranchi, G. \(2023, October\)](#)

⁸⁰ [Abdelrahman, M. S. \(2023, July\)](#)

transition from exploitative resource extraction to renewable natural resources. Regulatory frameworks and accountability mechanisms could help support this development. Second, the private sector could play a more active role in humanitarian efforts in the near term, and in supporting climate resilience in the medium to longer terms – providing that conflict sensitivity and community interests are addressed. Third, the development of sustainable industries could help support reconstruction and green economic recovery, providing employment opportunities locally, particularly where it focuses on Small and Medium-sized Enterprises, family businesses and community cooperatives.⁸¹

6.4.4 Green recovery strategies

While there was emphasis on rebuilding and strengthening governance and the rule of law, interviewees also reflected on Sudan's physical recovery, reconstruction and renewal. Recognising the damage already wrought, there was a shared desire to remediate and reconstruct their communities on the principles of participation and sustainability. This could include new or expanded projects like tree planting campaigns, improving grazing areas and waste management, as well as clean-up efforts to address pollution and military debris. There are also important opportunities to invest in Sudan's future through focusing on renewable energy, and this can be considered as a peacebuilding tool in itself if designed in ways which integrate peace positive approaches.

Many sectors have already begun planning and preparing for future recovery efforts, with experts from the fields of engineering, architecture, agriculture and conservation holding meetings or workshops. Those we spoke to strongly wished to see recovery strategies that addressed climate-induced problems like water scarcity, desertification, soil erosion and land degradation, and which integrate nature-based solutions. It was also suggested that incorporating climate adaptation and mitigation into recovery, and moving towards more sustainable infrastructure could enhance Sudan's resilience and contribute to well-being and stability. Building the technical capacity for climate risk prediction was also seen as important.

Thinking long-term helps anticipate the challenges arising from the current crisis. The question of what happens with those displaced by the conflict is one example – whether they decide to return home or are resettled, they need to be supported to rebuild their lives. For many, going back to the way things were will be impossible, and the process of return may also itself exacerbate conflict (e.g. linked to land rights) and environmental degradation if poorly managed.

Similarly, rebuilding institutions, particularly those involved in resource governance, will be critical not only for a sustainable recovery but for future peace. For example, the importance of integrating environmental considerations into all government structures from the outset, instead of treating environmental issues in isolation, is to mainstream them into every institution and sector.

The response to the war in Ukraine could provide guidance for Sudan. The question of a green recovery has been prominent in the discourse around rebuilding and future governance⁸² and financial support,⁸³ and may provide insights into greening sectoral strategies.

⁸¹ [Hoffmann, A., and Lanfranchi, G. \(2023, October\)](#)

⁸² [UNEP \(2024, June 11\)](#)

⁸³ [EIB \(2024, November 8\)](#)

6.5 Environmental research and awareness-raising

None of these assistance and peacebuilding strategies will succeed without accurate and comprehensive environmental and socio-ecological data, which in turn help build awareness of the war's environmental dimensions. This includes research on conflict-linked environmental damage, changing trends in environmental degradation and data to help understand future conditions in Sudan.

Interviewees spoke of the many, largely small-scale projects and research collaborations that have emerged during the conflict, which have seen community groups, NGOs and universities trying to track resource-related issues such as land-grabbing, deforestation and mining, typically by using social media. However, research capacities are limited and there are many data gaps; as one interviewee lamented: “We don’t even know all the impacts of the conflict.”

It is a situation that must be addressed urgently, with more support directed towards launching and supporting community initiatives for monitoring and knowledge generation. International funding could help, but it is flowing too slowly. Building capacities for innovative remote environmental research using context-appropriate communication technologies is also vital: “We don’t have any physical access into a lot of these areas, so we need to find means to remotely access information.” Such research methodologies exist, for example REACH (a joint humanitarian initiative of IMPACT Initiatives, ACTED and the United Nations Satellite Applications Programme) employs a methodology called ‘Area of Knowledge’, where a person can connect with others who have recently been in inaccessible areas to gather updated information.

Moreover, interviewees wanted to build more collaboration between communities, civil society, and research institutions such as universities, to help spread knowledge and dissolve knowledge hierarchies among these actors. However, knowledge generated in universities rarely tends to reach local communities – a trend described as ‘knowledge gatekeeping’. Similarly, important observations and analyses by people on the ground were rarely heard by those in power. Pairing collaboration with capacity-building programmes could help democratise and diversify knowledge generation and broaden participation.

Low-cost participatory research – or citizen science – can help to document environmental change in areas affected by conflicts, while building community engagement and empowerment in environmental matters.⁸⁴ Such methods can complement, contextualise and benefit from remote sensing technologies, however support, training and accessible tools are essential to enable this kind of mixed method research.

Community participation in research can help build public environmental awareness and responsibility. Awareness-raising was identified as important, though unsustainable practices were identified as being commonplace, for example “Negative impacts on the environment goes partially to the state, but also to some extent to us as citizens. There is a lack of awareness of proper waste management, farmers use pesticides and fertilisers, and there is illegal logging.”

Although community-level environmental awareness has improved significantly over the past five to 10 years thanks to the work of environmental organisations, knowledge gaps persist. There is a need to improve public understanding of climate change, waste and biodiversity, and environmental education and sustainability teaching can also benefit environmental and

⁸⁴ [Weir, D., McQuillan, D., and Francis, R. A. \(2019, September 6\)](#)

livelihood resilience. While some initiatives are already in place to increase awareness, such as workshops on climate adaptation and communal governance among farmers and pastoralists, these efforts could be scaled up. Moreover, expanding them could empower communities with the tools and knowledge to implement sustainable practices and to hold policymakers to account. The media was identified as an important actor in this space, together with more prominence for environmental education in school curricula. Identifying new and creative ways to communicate environmental issues was also seen as important, whether through digital campaigns, comedy, art, poetry, songs, performance or cafés.

7. Conclusion

Sudan's pathway to stability and peace cannot be separated from its environment. Environmental degradation and resource exploitation have deepened grievances and fuelled violence that needs to be addressed as part of a sustainable recovery. Addressing these challenges requires more than technical fixes; it requires solutions that are guided by communal interests and integrated approaches that can ultimately dismantle power imbalances and prioritise sustainable resource governance at all levels of society. The environment must be deeply integrated into strategies for peace. This means moving beyond treating sustainability as a checkbox; it must be woven into the very fabric of aid strategies, peace talks, conflict resolution efforts, approaches to recovery and rebuilding, and institutional or policy reforms. Sudan's land and environment are not merely a backdrop to its struggles – environmental health is inseparable from social and economic stability and from sustainable peace, particularly in the long-term, and is essential for future generations to thrive.

8. Recommendations

1) Understanding the environmental dimensions of conflict and peace is foundational for peacebuilding strategies in Sudan. While the war is still raging in Sudan, it is critical that the environment is not deprioritised but is instead integrated as a key consideration to inform a more impactful and sustainable approach to peace; an approach that addresses both the root causes of localised conflict and the drivers of national-level elite competition.

In particular, diplomats, international governments, multilateral organisations and Sudanese civil society should:

- Ensure that coordinated diplomatic efforts towards an end to the war are increased and sustained. Peace and stability are essential to enable resilient and sustainable livelihoods to flourish, halt environmental destruction and mismanagement linked to conflict, enable climate adaptation and allow the rebuilding of institutions that support peace and environmental sustainability.
- Ensure that dialogue and mediation strategies are informed by analysis and knowledge on how environmental dimensions intersect with political and conflict interests, including interests and objectives of key stakeholders. An understanding of climate security is also important for informing how policies should anticipate and respond to its consequences.

- Ensure that any peace process also integrates the necessary conditions for sustainable and conflict sensitive management of the environment and natural resources. Mediation efforts must consider lessons from Sudan's past and other contexts to ensure that any agreement integrates natural resource management, climatic and wider environmental factors to better enable sustainable peace. Most importantly, this must result in meaningful implementation in practice, including necessary measures for monitoring and accountability.
- Ensure that the environmental consequences of the war are properly monitored and assessed. Because of the war's impact on Sudanese experts and Sudan's research and analytical capacity, international support must be made available for remote assessments, capacity building and field assessments, where the security conditions allow. Sudanese civil society should be supported in this objective, including through the use of innovative research methodologies. Ongoing support will be needed to address the legacy of the most serious incidents, while data from monitoring and assessment activities will be foundational for Sudan's green recovery process.

2) Sudanese civil society should be better supported to sustain their critical roles in environmental issues and peacebuilding. Civil society specialising in these areas have been hard hit by the war, yet have sought to sustain engagement despite extreme pressures and very limited resources. Their role is important both in the immediate and long-term.

Civil society should:

- Continue to sustain the commitment to environmental issues and to adapt their understanding and response during changes to the context. Convening across diverse expertise can help to build a more comprehensive approach to understanding and working at the intersection of the environment, climate change, conflict and peace, and to overcome unhelpful silos. Many Sudanese with relevant skill sets and expertise have been displaced; proactive efforts to sustain networks and relationships can help to ensure they can continue to contribute.
- Support local communities to engage in participatory environmental research to ensure local knowledge informs decision-making.
- Strengthen natural resource management rooted in long-term traditions to enhance social cohesion and address livelihood and environmental challenges, including building on the experience of applying environmental peacebuilding approaches.
- Continue to advocate for bottom-up and inclusive approaches in peacemaking and governance efforts.

Donors, international NGOs and UN agencies should:

- Provide funding and capacity support to civil society to further enable the important roles that they play at the intersection of the environment, conflict and peace. This includes:
 - Environmental monitoring;
 - Research and analysis on contexts and trends;
 - Connecting communities and citizens with decision-making and ensuring accountability;

- Raising public awareness of the environment and climate change among the general public;
- Applying environmental peacebuilding methodologies, including as part of HDP Nexus responses to the humanitarian crisis;
- Ensuring that international aid is conflict sensitive and informed by local contexts.

3) The aid sector – including practitioners, policy makers and donors – should ensure that environmental and climate change considerations are integrated into humanitarian, development, and peacebuilding strategies and programming. When done well this helps ensure an impactful and conflict-sensitive response during times of conflict and peace.

This includes:

- Ensuring that commitments on integrating the environment into humanitarian response at the global and national levels are translated into action. This will require: senior-level support and signalling; clear processes and accountability for integration into structures and planning, and; a supportive environment to enable the extra time as necessary to make changes alongside other requirements, such as training and new templates.
- Ensuring that better understanding of the relevance of the environment to effective aid response results in changes to policy and practice in Sudan. Behavioural and attitudinal change will require the application of lessons from previous experience in Sudan – for example on environmental mainstreaming, or on integrating conflict sensitivity or gender sensitivity for tangible impact. Activities might include: convening practitioners across sectors and silos to discuss practical actions and problem solving; demonstrating practical relevance by building understanding of how the environment, conflict and aid intersects across specific local contexts in Sudan; appointing focal points within organisations, and; identifying and making changes to organisational policy.
- Ensuring aid interventions fully reflect the local environmental and natural resource context, including how environmental factors interact with conflict and peace. This includes improved understanding of how conflict sensitive aid necessarily integrates sustainable environmental management and climate sensitivity, alongside mitigating the risks of causing harm to the environment or of contributing or increasing exposure to climate change. Additionally, integrating longer timelines into impact analyses for aid interventions can help to ensure they contribute to environmental sustainability over the medium to longer term.
- Centre Sudanese experience and actively engage with local actors, including through fostering meaningful partnerships, to ensure interventions are better informed by the local context and based on environmental sustainability and community-owned solutions. It is essential that approaches to design and implement do not perpetuate marginalisation of certain groups but instead prioritise inclusivity.

4) The environment, climate resilience and sustainable natural resource management must form a key pillar of an eventual transition to peace that embeds a green recovery. This applies to both formal governance systems, policies and institutions and to the wide range of actors that have a role in recovery, including the private sector. In the

medium-term, and as instability continues amid protracted conflict, opportunities to embed relevant approaches and principles should be taken, as this can help to reduce environmental harm, and with it threats to livelihoods, wellbeing and peace.

Sudanese authorities and officials should:

- Work to increase the environmental awareness of decision-makers and ensure that environmental considerations are embedded into sectoral governance structures from the outset. Foster stronger relationships and more open processes of engagement with research institutions, technical experts, civil society, practitioners, private sector and communities – with a particular emphasis on engaging with marginalised groups – to enable greater understanding of the impact of policies and pave the way for more effective policies and their implementation.
- Centre the experience of communities in new and existing policies. The meaningful participation of communities at the forefront of socio-environmental issues and transparent, inclusive and accountable processes is important to ensure that Sudanese citizens' interests are represented in policy development and implementation. There are a range of tools that could facilitate this, including annual multi-stakeholder convenings, public consultations and submissions, local committees, workshops, councils, and open and inclusive forums.
- Develop policies to strengthen and empower local resource governance systems. This includes ensuring better coordination across different governance levels.
- Strengthen the environmental rule of law by improving the implementation of existing environmental laws. The creation of a neutral environmental body could help to ensure that environmental interests are represented in policies and governance.
- Urgently prioritise climate adaptation and a renewed National Action Plan, recognising that the war has taken the country back years in this regard.
- Take urgent steps to ensure that the revenues from high-value natural resources benefit Sudan's population, its recovery and development. This should be a core part of necessary broader economic reforms.
- Reconstruction could provide opportunities for sustainable rebuilding and transition towards renewable energy. However, it is important to ensure that interventions and strategies are conflict-sensitive and benefit local communities. Opportunities to combine this with peacebuilding approaches should be taken, based on lessons of success in other contexts.⁸⁵

Donors should:

- Provide technical assistance and capacity building to authorities to help address wartime environmental damage and prevent further environmental degradation. This includes supporting strategies that can contribute towards a green recovery for Sudan and its energy transition, which can support renewable energy, and prioritise local ownership and environmental sustainability.

Private sector actors should:

- Acknowledge their role in Sudan's green recovery by adopting practices that prioritise sustainable development and community benefit.

⁸⁵ For example, [Energy Peace Partners](#) has pioneered high impact projects.

- Invest in local resilience by empowering local initiatives, SMEs and cooperatives to drive sustainable economic recovery.

Research institutions and universities should:

- Promote participatory research by collaborating with civil society and local communities, ensuring that lived realities and local perspectives are represented.
- Dissolve knowledge hierarchies by making findings accessible to all stakeholders and encourage collaboration.
- Expand the use of innovative and complementary environmental research methods such as citizen science and remote sensing.

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