The State of Climate and Security: An Overview

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As a defining challenge of the 21st century, the climate crisis has expanded the scope of international security, spurring the development of a growing field of academia and policy dedicated to understanding and addressing climate-related security risks. There is increasing evidence of how climate change and security challenges interact and exacerbate one another, especially in already fragile and conflict-affected contexts. Institutional responses have emerged to address these complex and multidimensional challenges, with leading organizations now more likely to integrate approaches to climate and security. This chapter provides an overview of key debates and emerging practices in this field and analyses some of the emerging practices as well as remaining gaps to address climate-related security risks.

Introduction

Among all the collective challenges that society must confront in the 21st century, few – if any – are as fundamental and existential as climate change. At the same time, that technology swiftly advances and unravels new ways for humans to learn, work and live, key resources that are needed for life, such as clean water and fertile soil, are rapidly disappearing. In addition to enormous suffering, especially for already marginalized people in fragile regions, climate change is also driving insecurity globally. According to the latest synthesis report by the Intergovernmental Panel on Climate Change (IPCC), climate change impacts contribute to violent conflict by undermining livelihoods and human security, leading to increasing human vulnerability, grievances and political tensions through several complex pathways (IPCC, 2023). However, the ways in which climate change drives insecurity

are subject to intense epistemological debate, as are the solutions to addressing climate-related security risks.[1]

Knowledge of these interactions has advanced significantly in the past decade. However, the urgency of designing and implementing the kind of policies and programs that are needed to address them has only recently started to become clear to policymakers and practitioners in the climate, development, humanitarian and security fields. In this light, the Organization for Security and Cooperation in Europe (OSCE) put out a Ministerial Council Decision in 2021 (OSCE, 2021a) encouraging its participating States to raise awareness of, mitigate and adapt to these challenges, embed them into national policies, and leverage cooperation as an effective path towards addressing climate-related security risks.

To support these efforts, and as climate change becomes further entrenched in the security domain, this chapter presents an analysis of the current state of the climate security debate and practice; it also reviews some of the responses that have been put in place to address these complex dynamics and reflects on what gaps remain, with a view to helping policymakers and practitioners at different levels to more easily identify entry points for integrated climate security interventions.

Risky interactions

Climate security risks are not just future risks. They are already visible today and are projected to increase (Detges et al., 2020; UNDP, 2020; IPCC, 2023). Since the first academic studies on climate and conflict links in the 1990s, there has been substantial research exploring the impacts of climate change on security (Mosello et al., 2020b). While at the beginning the primary focus

[1] To date, language around climate and security does not explicitly include broader environmental impacts. This likely has to do with the fact that environmental impacts are often a consequence of climate change, such as when extreme temperatures and droughts lead to the degradation of soil, landscapes and ecosystems, therefore being subsumed under climate change. However, environmental impacts can also occur via direct human influence, such as via pollution, deforestation or in the context of war and conflicts (see: Lukas Rüttinger et al., 2022). In this paper, we use the commonly accepted and widespread terminology around *climate security* and *climate-related security risks* to also include broader environmental risks.

was on uncovering the direct effects of climate change impacts on conflict, research has gradually moved towards looking at indirect impact pathways and cascading risks (Busby, 2018). Today, there is a substantial body of literature examining the conditions under which slow and fast onset climate impacts – such as rising temperatures and extreme weather events, respectively – affect the livelihoods of vulnerable communities, change migratory and transhumance patterns, and challenge the basic structures, cohesiveness and capacities of human societies (Detges et al., 2020).

While research methods and foci differ, researchers mostly agree that the links between climate change and security risks are indirect, non-linear, and overall complex. In other words, climate change impacts act as risk multipliers, interacting with other political, social, and economic stressors to compound existing situations of vulnerability and fragility (Mach, 2019), eventually spurring the surge of violence and conflict (Busby, 2018). However, the ways in which climate change influences security are inherently context-specific. Moreover, certain factors such as **gender**, **age**, **ethnicity** and **socio-economic** status also play an important role, often determining how climate change impacts threaten security in a given context (Detges & Foong, 2023). For example, who migrates and who stays behind when climate change affects livelihoods is clearly influenced by these factors.

In light of these mediating factors, researchers often talk about **pathways of climate-related insecurity**, which facilitates better consideration of what happens between a cause (climate impact) and an effect (conflict and insecurity) (Detges et al., 2020; Busby, 2018). The next sections will present six of the most common pathways of climate-related security risks, as identified by mainstream research on this subject (Detges et al., 2020).

Competition over natural resources

The impacts of climate change and environmental degradation can give rise to new and exacerbate existing **disputes over natural resources** such as land and water. This risk is particularly salient where climate-induced changes in access to or availability of resources occur in a fragile social and institutional environment without the governance arrangements and social cohesion needed for competition and disputes to be managed peacefully (Engel & Korf, 2005). In such cases, competition can escalate into violence, in par-

ticular in areas with a history of violent conflict or where certain groups are excluded from natural resource management institutions, as well as where populations directly depend on natural resources for their livelihoods (Rüttinger et al., 2014). A frequently cited example of these dynamics is farmer-herder conflicts, mostly prevalent in the Sahel region and in some parts of Eastern Africa (Eberle et al., 2020). In Kenya's Tana River Delta, for instance, Pokomo farmers and Orma herders have long been clashing over competing claims to water and land use and property rights, especially after the introduction of privatization policies that did not account for the need for herding corridors (adelphi, n.d.d.). Farmer-herder violence is often also associated with increased rates of gender-based violence, creating a vicious cycle of increasing climate insecurity, conflict and inequality. In Mali, heightened marital tensions, domestic violence, as well as early and forced marriage, sexual exploitation, harassment, rape and limitations on women's rights have been associated with periods of livelihood difficulties linked to climate change and conflict (Nagarajan et al., 2022).

Furthermore, climate change impacts can affect the **governance and management of shared natural resources**, leading to tensions between governments and communities. For example, in many transboundary river basins, there is an increase in water demand due to economic development and population growth, but at the same time a decrease in supply due to the impacts of climate change. This can spur diplomatic tensions and conflict (Blumstein et al., 2016), as currently seen between Egypt and Ethiopia in the context of the Grand Ethiopian Renaissance Dam (GERD).[2]

Livelihood insecurity

Farming, livestock herding and fishing – important livelihoods for many – heavily depend on the availability and stable supply of natural resources. In many places, the impacts of climate change and environmental degradation

[2] Ethiopia has built the GERD upstream on the Blue Nile, which is one of the main tributaries of the Nile, leaving Egypt concerned about potential consequences for its water needs, particularly for irrigation. Egypt's growing water scarcity means it is particularly susceptible to warming temperatures, shifting rain patterns and sea-water intrusion. Due to these uncertainties, there have been ongoing tensions between these two countries, with Egypt at times using strong language and threatening military action. (Source: adelphi, n.d.b.)

will make these livelihoods less reliable or even unviable. A key way through which the linkages between climate change impacts on livelihoods and insecurity manifest is through migration – as people choose or are forced to move from their homes to find a better life for themselves and their families elsewhere.

Of course, migration itself is not inherently a risk and often serves as a coping strategy and an important driver of economic development. However, if movements and integration are not well managed, it can create new challenges in receiving areas and give room for grievances between arriving and receiving communities to arise. This is especially the case for rural to urban migration, as cities tend to be the largest receivers of migrants. In Haiti, for example, youth involved in farming, pastoralism or fisheries in rural areas have migrated to cities, often ending up living in slums without access to basic services and with even fewer economic opportunities. This has been a key factor in the growth of armed gangs, especially in the capital Port-au-Prince, which today pose immense security challenges to the country and its people.[3]

Gender and age are important determinants when it comes to the linkages between climate, migration and insecurity. In Central Asia, for example, migration is a predominantly male phenomenon.[4] This can create stress for women, as they may see an increase in their unpaid workload and hence face additional economic hardships, while their vulnerability to climate and environmental impacts persists (Mosello et al., 2021). Instead, in Bangladesh, women are slightly more likely than men to migrate to cities to work in the garment industry or abroad to be engaged in domestic work (Mosello et al., 2021). This puts them at increased risk of gender-based violence and in some cases even trafficking (Chandran, 2016).

[3] Based on research conducted in the context of an upcoming introductory study on climate and security in Haiti. More information: https://adelphi.de/en/projects/introductory-study-on-climate-and-security-in-haiti.

[4] However, this differs slightly between countries; for example, female migration tends to be more widespread in Kyrgyzstan than in Tajikistan and Uzbekistan. (Source: Rocheva & Varshaver, 2018)

Food price fluctuations and food insecurity

Food production is highly susceptible to changes in climate and the environment. Climate impacts on food production, in turn, contribute to volatility and shocks to food prices and food supply, which can act as a catalyst for protests and political instability in many parts of the world. Between 2008 and 2011, for example, severe droughts hit several of the world's breadbasket regions like the US, Russian Federation and Australia, severely impairing global wheat production. The resulting food shortages and increase in food prices caused social unrest, especially in those countries with high dependence on wheat imports, such as Egypt (adelphi, n.d.c.), eventually affecting the whole region and turning into the revolutions known today as the Arab Spring (adelphi, n.d.e.). Today, these dependencies are being tested once again through the shocks on wheat supply stemming from on-and-off deals in the context of the Black Sea Grain Initiative, in which the Russian Federation has agreed to let Ukrainian vessels resume grain and fertilizer exports via the Black Sea despite the ongoing conflict in the region (UN, 2023a).

Because responsibility for providing and preparing food within households often falls on women, they are disproportionately affected by food price spikes, carrying a higher burden in situations of food insecurity. This is linked to unfavourable structural factors, such as a modern shift away from traditional crops (more often produced by women) towards cash crops and monocultures (usually produced by men), which also has a negative impact on nutrition. In fact, when looking at the four dimensions of food security – availability, access, utilization and stability – women are more susceptible to food insecurity and malnutrition than men in every region of the world (Botreau & Cohen, 2019).

War, crime and conflict financing

When climate and environmental changes make livelihoods unviable, the need for survival can push people to turn to illegal or unsustainable activities – a phenomenon that is usually referred to as maladaptation (Schipper, 2020). In Afghanistan, for example, many farmers have turned to illegal poppy seed cultivation, which is used for opium production and trade by traffickers and armed groups. In part, this shift has been driven by climate change undermining traditional crop farming, while poppy is a more drought-resistant crop (Brown, 2019). Similarly, in Somalia, some pastoralist groups have

turned to wood-cutting for illegal charcoal production, thus contributing to large-scale deforestation and impairing the livelihoods of rural farming communities who depend on forests (adelphi, n.d.a.). More generally, environmental crimes, such as illegal logging and drug production, are often at the centre of conflict economies, representing about 38% of the financing for armed and terrorist groups (Nellemann et al., 2018). The high profit potential of environmental crimes provides incentives for such actors to prolong and expand conflict, while conflicts involving natural resources have a higher probability of reigniting after resolution in comparison to other conflict types (Nellemann et al., 2014).

At the same time, wars and conflicts can lead to environmental destruction and contribute to climate change. The areas in and around conflict hotspots are often filled with wreckage from bombed infrastructure and damaged military equipment, chemical pollution and, at times, even radioactive waste. In Syria, 12 years of war have brought severe damage to the country's orchards and cleared 36% of its forested areas. This happens both directly (due to fighting) and indirectly (due to the war's impacts on livelihoods, which create incentives for maladaptation practices) (Najim et al., 2023). Because of the heavy reliance of militaries on fossil fuels, they are also serious emitters of greenhouse gases; it is estimated that they are responsible for 5.5% of global emissions (Cottrell & Parkinson, 2022).

Extreme weather events

Extreme weather events are natural occurrences. However, climate change is making them more frequent and more severe (IPCC, 2023). Rapidly changing weather patterns are increasingly difficult to predict and, therefore, to prepare for. When an extreme weather event hits a country, it is common that some level of insecurity is present in the aftermath. For example, as institutions are overloaded with response and recovery measures, they might be less able to provide public security and crimes may spike (Peng & Zhan, 2022; Corcoran & Zahnow, 2022). Yet, such effects are normally temporary, as states are usually able to restore order eventually. But when disasters happen in succession and the government is not able to adequately respond to them, or when some groups perceive themselves as being excluded from the responses, that can feed back into existing grievances and political instability and have the potential to undermine the legitimacy of the government (Harris et al., 2013).

In 2011, for example, Thailand was hit by severe floods that affected almost two million people. This happened during an already fragile political situation: regular protests against the government had been happening since 2008 and at the time of the floods, there was a brand-new government in power. In the aftermath of the floods, the response and aid provided by the new government was perceived as not transparent and unfair, amplifying these grievances and leading to the outbreak of a new wave of protests that continued until the coup in 2014 (adelphi, n.d.g). Yet, the opposite is also true: in 2004, when Indonesia's northern Sumatra region was hit by the Indian Ocean tsunami that killed more than 167,000 people and displaced over 500,000 people, the Indonesian president proactively used peacebuilding as part of response efforts. The country had been in civil conflict since the 1970s and, after the tsunami, the president called upon the population to unite for reconstruction. This culminated in a peace agreement between the parties and a subsequent ceasefire that lasts until today (adelphi, n.d.f.).

Unintended consequences of climate and security policies

Responses to climate and environmental impacts or to insecurity and conflict carry their own risks. For example, about ten years ago, several countries introduced quotas for biofuels to reduce greenhouse gas emissions. However, these fuels are often produced through large-scale monocultures, such as palm oil and sugar cane. Besides the negative environmental and climatic impacts of such agricultural models, in many contexts this has provided actors with financial incentives to forcefully grab land from local communities, creating new conflicts and spreading insecurity (Balehegn, 2015; Selfa et al., 2015).

Equally, humanitarian and peacebuilding efforts can unintentionally foster climate change and environmental degradation, and even exacerbate insecurity and conflict dynamics. In the Lake Chad Basin, home of one of the world's largest humanitarian emergencies with up to 6.9 million people in need of assistance as of 2023 (OCHA, 2023), it was observed that people in camps for displaced persons were receiving supplies of food, but no cooking fuel to prepare them. This led people to leave the camps and move to areas controlled by armed groups in order to have access to wood fuel, putting their security at risk. Those who stayed in the camps started cutting down forests in the surrounding areas, laying the ground for even more climate risks in the future (Vivekananda et al., 2019).

Siloed military and security strategies can also undermine livelihoods or coping strategies, paradoxically leading to insecurity on other fronts. Such strategies often include restricting movements of people, which can impede local communities in accessing certain areas that are key for fishing, farming and cattle rearing, as well as for commercializing their produce. The same goes for peacebuilding: in Colombia, after the peace accord between the state and the Revolutionary Armed Forces of Colombia (FARC) was signed in 2016, ending over 50 years of armed conflict, the militia was demobilized and left the forest areas they had occupied for decades. In the aftermath, other groups moved into these areas and deforestation increased by 400%. Violence against environmental defenders has also skyrocketed ever since, with Colombia now being one of the world's most dangerous countries for them, as well as leaders of indigenous communities (FIP & adelphi, 2021).

Another poignant example of the failure of isolationist policy is critical mineral mining. Many countries in the Global South are home to vast quantities of minerals such as cobalt, lithium, and other earth elements that are vital to build batteries and renewable energy infrastructure. To acquire the resources crucial for a green energy transition, wealthy, industrialized states have centred their policies around securing these minerals with little consideration for the impacts of the trade on local populations. In the Democratic Republic of Congo (DRC), for example, the cobalt trade has fuelled violent conflict, human rights abuse and insecurity, causing up to 2,000 deaths annually (Amnesty International, 2015; Arvidsson et al., 2022). Yet, the effects of cobalt mining on the labourers and surrounding communities have been missing from the foreign policy discussion, with critical consequences for peace and security (Church & Crawford, 2020; Business & Human Rights Resource Centre, 2020).

Institutional responses to climate security challenges

The increasing manifestation of climate-related security risks in many contexts worldwide, and especially in those already characterized by fragility and conflict, has prompted institutional responses across the policy landscape. Policymakers have become less likely to consider climate change an isolated problem, acknowledging the need for horizontal and vertical collaboration to address the interdependent challenges it poses (Climate Diplomacy, 2022). Key climate change topics, such as adaptation and mitigation, are increasingly discussed alongside security objectives, with interventions more likely to

consider climate change impacts within stabilization, peacebuilding and development efforts.[5] Now, research institutions and governments alike assert that climate policy should not only be part of foreign policy; rather, foreign policy *is* climate policy (G7 Foreign Ministers, 2022; Wilson Center 2020).

These policy and programming developments emerged partly from shifting academic paradigms, which have broadened the scope of climate analysis beyond environmental impacts, emphasizing the wide-reaching effects of climate change across a diffuse group of sectors.[6] However, increasing policy integration can also be attributed to the institutional experience gained as the climate-related security field evolved. With more programming being piloted, policymakers and practitioners are seeing increasing evidence that responses attempting to approach climate-related security challenges within a single sector are less effective, in extreme cases exacerbating conflict dynamics (Detges et al., 2020; Seyuba & Meijer, 2023). Even in moderate cases, siloed approaches to climate-related security challenges have not been as successful as multilateral ones (adelphi, 2022). On the contrary, effective responses have proven to be those cutting across sectors and policy areas and acknowledging the inherently complex and multi-dimensional character of climate-related security risks (Detges et al., 2020). While demands for comprehensive and integrated action increase, certain sectors are prioritized in the discourse. Cross-cutting responses in climate, disaster risk reduction, development, humanitarian, stabilization and peacebuilding efforts are believed to be particularly in need of multi-dimensional approaches (Mosello et al., 2020).

The following sections outline some of the efforts that have been made by international organizations and civil society to integrate climate-related security considerations into their programming.

OSCE

The OSCE works according to principles of international cooperation and democracy promotion to achieve its goals. It was one of the first multilateral players to recognize the linkage between the environment and security and to acknowledge climate change as a long-term challenge in its 2007 OSCE

[5] For example, livelihood loss due to desertification, migration due to flooding, etc. (See: Ide et al., 2021)

[6] For an overview of the development of the climate security field in academia. (See: Von Uexkull & Buhaug, 2021)

Madrid Declaration on Environment and Security (OSCE, 2007). More recently, in 2021, the OSCE released a Ministerial Decision on climate change action and cooperation, in which it acknowledged that climate change policy can serve as an opportunity for collaboration between states, "building mutual confidence and promoting good neighborly relations." (OSCE, 2021b, p.2) The Ministerial Decision also called upon members to integrate climate considerations into national policy, take a multi-stakeholder approach by engaging academia, the private sector, civil society, etc., and to use the OSCE as a platform for facilitating exchange on climate change adaptation and mitigation (OSCE, 2021a).

Under this umbrella, the OSCE funds a range of activities to address climate resilience, adaptation and mitigation for peace and security, typically confining its efforts to the internal development of OSCE participating States (Barnhoorn, 2023). Many of these activities revolve around a comprehensive understanding of security, with the logic that climate change threatens economic prosperity, institutions and stability. Some of the OSCE's most recent activities in this field have included livelihood support, cultural heritage support, and sustainable tourism promotion in the framework of its flagship project, Strengthening Responses to Security Risks from Climate Change in South-Eastern Europe, Eastern Europe, the South Caucasus and Central Asia.[7]

United Nations

The United Nations (UN) has undertaken significant efforts to absorb climate and security considerations into its policies and develop the necessary structures to address the related challenges. Since the first UN Security Council (UNSC) debate on the impact of climate change on peace and security in 2007, the UN has issued a long list of statements and resolutions on climate-related security risks (UN, 2007). These have mostly focused on specific countries and regions deemed most vulnerable, including the Lake Chad

[7] The project is being implemented by the OSCE in partnership with adelphi. It aims to reduce climate change-related security risks through raising awareness, developing capacities and sharing knowledge regarding the implementation of climate change adaptation measures. (See: OSCE, n.d.)

Basin, Somalia, Mali, and Darfur, among others.[8] Comprehensive and ambitious action, however, has been compromised by a lack of geopolitical collaboration.[9] In the absence of UNSC consensus, "speech acts" by UN and other leaders have attempted to advance climate and security principles in the policy domain with constructivist methods, drawing attention to – and thus shaping – the climate-related security agenda (Odeyemi, 2020). For example, Secretary-General António Guterres' New Agenda for Peace policy brief, published in July 2023, highlighted the risks that climate change poses to international peace, calling to systematically address the peace and security implications of climate change in peace mandates as well as in regional operations (UN, 2023b).

Meanwhile, significant efforts in terms of integrated climate, peace and security action have been taken across UN agencies. In 2018, the Department of Peacebuilding and Political Affairs (DPPA), the Department of Peace Operations (DPO), the United Nations Environment Programme (UNEP), and the United Nations Development Programme (UNDP) established the Climate Security Mechanism (CSM) to address climate-related security challenges "more systemically." (UNEP, 2020) To date, the CSM has provided multidisciplinary support to Member States, regional organizations and United Nations entities, including field missions and UN Resident Coordinators, and has undertaken a range of activities to address relevant challenges, including conducting climate security risk assessments and developing risk management strategies (UNEP, 2020). The Secretary-General's Peacebuilding Fund (PBF) has also shown particularly extensive engagement with climate and security programming, investing in more than 70 climate-informed peacebuilding projects implemented by 21 different entities since

[8] So-called "thematic" resolutions.

[9] Permanent and non-permanent members of the UNSC have divergent views on the extent to which climate change should be integrated into the global peace and security agenda, with China and Russia being notable opponents on the ground that climate change is essentially an issue of sustainable development, and hence not part of the UNSC's remits. In December 2021, it was a Russian veto that caused a resolution defining climate change as a "threat to international peace and security" to fail. Meanwhile, other states, including wealthy nations such as the United States, but also smaller states that are highly vulnerable to climate change impacts, see climate change as an "existential threat," thus justifying its place on the UNSC's agenda. (See: Security Council Report, 2023)

2017. These projects have been key to push boundaries and galvanize greater attention to the nexus between climate, security and peacebuilding, piloting innovative approaches towards the 'bottom-up' realization of global commitments to encourage community adaptation (Gaston et al., 2023).

European Union

The European Union was one of the first regional organizations to adopt the climate and security doctrine, arguing as early as 2008 that the "threat multiplier" nature of climate change requires it to be at the heart of EU security policy (European Commission, 2008). Since then, the EU has undertaken a range of activities on climate security. These have included granting climate aid to low- and medium-income states, incorporating climate change considerations in its development and peacebuilding activities, looking at climate change from a migration management perspective, and advancing the EU's economic interests in climate action at the international level (Bøås, 2020; European Parliament, 2022; Young, 2021). However, until recently, the EU has largely limited its attention and funding to the end of the causal impact chain, by supporting livelihoods, good governance and peacebuilding efforts in the Global South, while confining the causes of such risks, which include EU emissions, to other policy spheres (Michel, 2021).

More recently, however, in 2023, the EU published a Joint Communication laying out how it will address the growing impact of climate change and environmental degradation in the fields of peace, security and defence. This was a critical step, setting an EU-wide framework for responding to these challenges, consisting of a set of concrete actions across the entire spectrum of data, policies, missions, defence, and cooperation with third parties to ensure that the impacts are accounted for in all levels of external policymaking, planning and operations (European Commission, 2023).

African Union

In contrast to the EU, the African Union's climate and security agenda has been broadly domestically focused, designed with the recognition that its Member States are among the most exposed to climate-related security risks globally (Notre Dame Global Adaptation Initiative, n.d.). The dual concerns of climate change and conflict and demonstrable overlap between the two in

many African countries have given the AU first-hand experience on climate-related security problems. Due to this, the AU has increasingly become the flag bearer of climate and security action on the international stage (Kodio, 2021). In 2022, the AU released a ten-year climate action plan outlining the potential impacts of climate change on food, migration and conflict, noting that "climate change may contribute to an increase in the frequency and intensity of conflict and human security issues on the continent, creating protracted and multifaceted humanitarian and security crises that will strain the capacity of the African Union Peace and Security Architecture (AUPSA) and other peace and security mechanisms to effectively respond." (African Union, 2022b, p.14).

In terms of foreign policy, the African Union has used the international stage to highlight the disproportionate role Global North countries have played in causing the climate crisis, pushing for compensation through loss and damage and climate adaptation funding at the Conference of the Parties (COPs) and other summits (African Union, 2022a).

NATO

Being first and foremost a military alliance, NATO is distinct from the previously outlined international organizations that view security as just one among many components of their mandates (Barnhoorn, 2023). NATO's approach to climate change is instead framed within a more traditional security context that is concerned with great power rivalry and the protection of Western interests (NATO 2023b). Early climate change considerations in NATO were centred on discussions of how its operations were impacting the environment and climate change through emissions. As the debate on climate and security began to evolve at the institutional level, however, discourse within NATO bodies also shifted towards focusing on how the effects of climate change could impact NATO operations (Barnhoorn, 2023).

In recent years, both dimensions have been integrated into NATO's portfolio, disrupting previous theoretical security paradigms that framed climate and security spheres dichotomously, with climate considerations thought to weaken or disrupt security operations (Shea, 2022). The war in Ukraine and the COVID-19 pandemic were instrumental in this conceptual pivot, demonstrating the "interlinkages between conflict, environmental degrada-

tion, and societal instability, and how these can lead to greater security risks for NATO." (NATO, 2022) NATO's 2022 strategic concept, for example, recognized climate change as a "defining challenge of our time," stating that NATO should be the "leading international organization when it comes to understanding and adapting to the impact of climate change on security." (NATO, 2022, p.11) At the NATO Vilnius Summit of July 2023, NATO Member States committed to continuing to address the impact of climate change on defence and security, integrate climate change considerations into all of NATO's core tasks, and contribute to the mitigation of climate change by significantly cutting greenhouse gas emissions (NATO, 2023a).

Civil society

Civil society has traditionally been at the forefront of concrete and direct action to address climate-related security risks. Especially as governments and international organizations have started embracing the climate security agenda, growing funding allocations have followed, enabling more action at the civil society level. NGOs engaged in peacebuilding have increasingly built and included climatic considerations, programs, and teams into their work. Mercy Corps, for example, has been particularly influential in this regard, using climate change adaptation interventions as an entry-point for peacebuilding in its work in the Horn of Africa since 2019 (Mosello & Rüttinger, 2020; USAID, 2020). In Colombia, local NGOs have been actively engaged in environmental peacebuilding projects for decades, working on land access, advocating against deforestation, and supporting local self-governance of resources (Hachmann et al., 2023; Gonzales, 2021).

However, while climate-related security risks have been integrated into development and peace programming, environmental and climate change NGOs have been less likely to integrate security considerations, perhaps due to funding challenges. But this, too, is starting to change. The WWF, for example, has produced joint research with adelphi on the links between the environment, security and peace and called for wider incorporation of environmental dynamics into the climate security portfolio (Rüttinger et al., 2022).

Conclusion

While efforts to better understand and address climate-related security risks are substantial and growing, as outlined in this chapter, more remains to be done for the field to develop, particularly in terms of policy and programming (USAID, 2020). Structural barriers characterize the current institutional landscape, with both funding and implementing organizations not set up to address problems using cross-sectoral expertise and methods. Those attempting to formulate responses to complex and multi-dimensional climate-related security challenges face several key obstacles.

Firstly, the climate-related security field is still nascent. While many of the ways in which climate change and insecurity are linked are becoming increasingly visible and difficult to ignore in many contexts around the world, more research on context-specific climate-related security challenges and how they affect different people and groups differently based on pre-existing socio-economic dynamics is needed. More disaggregated, targeted monitoring and evaluation efforts are also crucial to understand what approaches have worked to address these challenges. Measuring impact is invariably a major challenge in security programming, where conflict prevention and mitigation is difficult to prove. Climate-related security evaluation faces even further barriers compared to traditional security analysis, as not enough funding is available.

Secondly, climate-related security discourses and rhetoric have not yet translated into concrete policy and funding commitments, particularly at the highest levels. This has inhibited the ability of governments and civil society to commit to the cross-sectoral and long-term programs and projects that would instead be required to address risks, especially for the most vulnerable and marginalized people. Climate-related security risks often lie between or beyond the scope of different bodies and agencies, inhibiting multilateral collaboration. This also means that funding remains siloed. Meanwhile, conflict zones are largely excluded from development funding, including climate finance – sequestering aid from those who need it most (UNDP, 2021; Cao et al., 2021).

Finally, despite ambitious claims, the discourse around climate-related security risks has not yet been successful in re-imagining the security establishment. The field remains steered by wealthy nations who operate according

to long-defined principles of national and international security. Those affected most by climate change, conflict, and international intervention face prohibitive hurdles that exclude them from discourse, policy design, and program evaluation. Moreover, the leading role that Global North countries have taken in climate security integration has offered them an opportunity to organize the climate and security agenda according to their priorities (Sultana, 2022; Warner & Boas, 2019; Kedia et al., 2020). As a result, many regions, despite being highly vulnerable to climate-related security risks, are not given proportionate attention, for example Latin America and the Caribbean. These dynamics pose challenges for climate security beyond operational matters, forcing the question of what security means in the context of climate change, and for whom. In a security environment pervaded by zero-sum equations, such questions will not be easy for climate-related security to resolve.

These complications aside, it is beyond doubt that the progress of the climate-related security field in recent years has been trail-blazing. The integration of climate change into the security field has opened up new ways of understanding security, forcing some of the most rigid, hierarchical organizations globally to re-evaluate their methods and consider flexible, collaborative responses to conflict. It has also forced the security sector to consider how it is contributing to the climate crisis, locating all actors within a system that they have the potential to change for the positive. Despite both theoretical and operational problems that still need to be solved, this emerging field offers rich opportunities for critical engagement and creative programming to tackle some of the most demanding challenges humanity has yet faced.

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