WEATHERING RISK

Strengthening peace
and resilience
in a changing climate:

Nine global trends
and opportunities

WEATHERING RISK SYNTHESIS REPORT

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Introduction

The climate crisis is one of the most serious risks to global peace and stability in the 21st century.

As global hunger and anti-government senti-ments rise, geopolitical tensions increase over access to critical resources needed to transi-tion to a low carbon economy, and many other critical challenges to peace, this report identifies **nine pressing global climate security trends and opportunities.** Based on analysis of the 43 case studies, assessments, mapping exercises and scenario-based analyses from around the world that were produced under the Weath-ering Risk initiative between 2020-2023, and complemented by key climate security publica-tions, this report identifies key structural forces through which climate change is likely to shape peace and security in the next decade. Based on evidence from real world examples, we outline emerging dynamics, key uncertainties and **entry points (opportunities) to address** these risks. Through this **forward-looking outlook** on climate change and security around the world, Weathering Risk seeks to prioritise opportuni-ties to strengthen peace and resilience **now** to reduce the climate security **risks of the future.**

ABOUT WEATHERING RISK

Weathering Risk is a multilateral initiative that offers **tailored analysis** and tools to understand climate-related risks to human security and build sustainable peace. A key recommendation of the 2015 G7 mandated report 'A New Climate for Peace' called for 'more and better climate security risks anal-ysis.' In 2020, Weathering Risk was launched as a direct response to this call at the Berlin Climate and Security Conference. The initi-ative is designed to **address the gaps in our understanding of and capacity to mitigate** the impacts of climate change on peace and secu- rity through research and analysis, capacity support tools, dialogues and trainings.

The Weathering Risk methodology integrates state-of-the-art quantitative and qualita-tive methods into climate security analysis, includes spatially disaggregated climate impact data, conflict analysis and scenario methods and is flexible in application in terms of geography and depth of analysis. An **intersectional research approach** is used that can disaggregate findings by gender, age and identity groups to better understand different dimensions of resilience and risks. Its aim is to facilitate risk-informed planning, enhance capacity for action and improve operational responses.

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Climate justice and solidarity

Climate justice challenges **whether government is equipped in its role** to protect the most vulnerable and share the benefits and burdens of climate change and responses to it equitably. Where it is not, or perceived not to be, this pressure on governance can **erode trust** in and legitimacy of governance at local, national and international levels, posing a **risk to peace**.

TREND
As policymakers in Western countries battle rising populism at home and fail to meet Paris commitments to reduce emissions and support adaptation, the burdens of climate impacts, which fall most heavily on low-income and marginalised communities, will increase societal disparities, growing political grievances.

Climate justice calls for the recognition that responding to the climate crisis is not just a technical effort to reduce emissions, but a matter of **addressing the human security** of those who have contributed less and suffer more. It is a question of whether governments, institutions and communities are to better anticipate and address the predicted security and justice implications of climate change on human rights and social inequalities. At the international level, climate justice concerns equitably **distributing resources** from industrialised countries with historical responsibility for climate change towards those having to deal with the consequences. It is also an increasing consideration in **green transition processes**, to ensure that deals around developing countries' shifts to renewables are just and take account of other national development goals. These considerations are relevant to programming, financing, implementation and accountability of climate, humanitarian, development and peace-affecting actors.

The establishment of the **loss and damage fund** – offering emergency support to those facing direct losses and damages due to climate impacts at COP27 was a long-awaited, welcome recognition of the disproportionate impacts of climate change on countries and people who have emitted the least and as a step towards justice. Its establishment was a result of a 30-year fight, led by small island states and developing countries. In order make an impact, it requires **adequate financing** beyond what has been pledged at COP28.

> The $661.39 million USD pledged at COP28 covers less than 0.2 percent of irreversible losses and damages that countries face every year.

Additional financial measures, like investing to prevent or reduce future damage caused by climate change can also promote peace and stability. **A granular, localised understanding** of how climate change threatens human security in fragile communities, and integrating this understanding across policies and programming is also needed.

Climate justice is also about creating the conditions for all communities to thrive -not just about restitution after the fact. A **rights-based approach** to climate justice which includes the rights to peace, development, humanitarian assistance and a healthy environment highlights the importance of inclusive governance processes and investing in prevention.[1]

Responses must address developing countries as partners, not merely beneficiaries beholden to meeting externally dictated climate targets. They must address the **unequal impacts** of climate change on different groups, including indigenous people, young people, disabled people, women and the elderly. Responses must also align **climate and development goals.** Solely focusing on climate targets can hinder national development, missing the chance to achieve both simultaneously, as well as discourage domestic support, which can create political disincentives.

[1]Minnerop, P. et al. (2018).

Critical minerals and the energy transition

The transition to a renewable energy economy hinges on **access** to critical minerals like cobalt, graphite and lithium — many of which are highly concentrated in developing countries that have weak environmental and labour protection practices, often on or near indigenous land.[2] How these minerals are sourced will determine whether this transition supports **peaceful, sustainable development** in the countries where they are extracted or reinforces insecurity, exacerbating **local tensions and instability.**

TREND
The rush to procure and safeguard critical minerals for the energy transition can hinder sustainable, responsible and conflict-sensitive global practices. Efforts towards diversifying the geographical sourcing and processing of critical minerals away from China progress slowly.

Critical materials are a diplomatic priority. Their production and processing are highly concentrated geographically, posing challenges related to resource security and geopolitical dynamics. This concentration creates vulnerabilities and uncertainties for both consuming and producing countries that may affect the use, cost and sustainability of energy transition technologies. Strategies to diversify the supply and production chains for these materials are starting to emerge, reflecting multiple economic, political and social priorities and considerations.

According to the IEA, demand for critical minerals grows by more than double by 2030 under a Announced Pledges Scenario.

Critical mineral mining has been linked with **environmental degradation and violence** over water, land use and lack of community participation. Demand for critical minerals is expected to increase six-fold from current needs,[3] raising concerns of increased conflict.

54 percent of energy transition minerals are located on or near indigenous peoples' land, with the percentage rising to over 80 percent in the case of lithium projects.[4] Around half of the world's copper and lithium production is concentrated in high water-stress areas, including the lithium triangle in South America.[5] Without effective **social and environmental safeguards,** the potential for conflict over both land and water rights grow.

Long-term effects when unsustainable mining practices are used are polluted lands, water and resources, the destruction of culturally significant sites, increased rates of violence against land defenders and the trafficking of women and children.[6]

As China dominates critical mineral supply chains and processing capacity required for the transition to low carbon energy sources, this also poses significant geopolitical risks. As governments around the world, particularly in the West, seek to shore up their mineral supply chains to safeguard their **energy security,** new partnerships and practices are required to ensure efforts to curb the climate crisis avoid increased instability, ecological damage and scope for corruption.

Responses must first understand how the transition to a low-carbon economy—and the extraction and processing of minerals and metals required to make that shift—could affect fragility and conflict dynamics in mineral-rich contexts. Governments should ensure conflict-sensitivity is a core requirement for all **climate financing** for clean energy in the extractive and minerals sector through frameworks with risk-based due diligence to anticipate and avoid environmental degradation and conflicts, and provide a channel for community engagement.[7]

[2]Owen, J. R. et al. (2023). [3]IEA (2022). [4]IRENA (2023). [5]IRENA (2023). [6]First Peoples Worldwide (2021). [7]OECD (2022).

Food price shocks and food insecurity

Food insecurity and conflict are mutually reinforcing and closely linked - decreased agricultural and economic productivity as a result of climate change will increase food prices, compounding fragility and conflict across the globe.[8]

TREND

Forecasts suggest agricultural production will continue to be exacerbated by climate change, likely increasing price volatility in the future. Poorer countries close to the equator with fewer resources will be hardest hit, likely resulting in political instability associated with food price spikes.

More than a quarter of a billion people in 58 countries are estimated to be experiencing acute food-insecurity.[9] The global food crisis is driven by a confluence of interconnected **governance, social, economic and climatic challenges,** including the competition for resources related to agriculture or pastoralism, reform processes that can lead to occurrences of land grabbing, rising costs of food, mass displacement, and geopolitical manipulation.

Weather extremes linked to climate change primarily drove food insecurity in 19 of the 58 countries facing crises level or worse food insecurity in 2022.[10] These forces disproportionately affect vulnerable communities in fragile contexts, increasing the risk of conflict.

Food prices are the most influential factor in the relationship between food and conflict. Spikes in food prices are frequently driven by **short-term weather variations,** as agriculture is strongly affected by changes in rainfall patterns and temperature changes.[11]

Climate-related conflict is more likely to emerge in regions highly vulnerable to climate variability where there is **low socio-economic development, low state capacity, socio-political inequality, and high reliance on agricultural production.** In particular, food security is shown to be one of the main vectors linking the adverse effects of climate change to violent conflict.[12] Price volatility and agricultural resource competition, frequently driven by short-term weather variations, including **shifting rainfall patterns, drought and temperature changes,** are underscoring this connection further.[13]

Conflict can also have impacts in countries far from where the violence is occurring. The Russian war of aggression in Ukraine is driving spikes in global food prices, especially in countries that have become reliant on Russia and Ukraine for its wheat supply and other imports.

Globally, the gender gap in food insecurity continues to increase. In 2021, 31.9 percent of women around the world were moderately or severely food insecure, compared to 27.6 percent of men.[14]

Achieving food security is a critical contribution to stability. Responses to reduce this challenge must therefore ensure conflict-sensitive and climate change risk informed strategies. Additionally, greater investments are required which support economic diversification away from economies that are heavily reliant on food systems as the main employer of people.

[8]Sova, C. et al. (2023). [9]United Nations Office for the Coordination of Humanitarian Affairs (2023). [10]FSIN and Global Network Against Food Crises (2023). [11]Sova, C. et al. (2023). [12]Devlen, L. et al. (2022). [13]Ibid. [14]FAO (n.d.)

FIGURE 1

From 2016 to 2023, high acute food insecurity doubled.

2016

11%
in 48 countries and territories

2023

21.5%
in 59 countries and territories

Water governance

Climate change is creating changes and volatility in **seasonal flows** and **regional water scarcity** which affects human security and prospects for peace through its adverse impacts on food security, livelihoods, health, energy and climate resilience.

TREND
While water stress is increasing worldwide, it is not likely to directly spark international conflict. Water also has the potential to be a strong source of international cooperation with renewed focus on water as a central driver to achieve the SDGs and other global agendas like the Paris Agreement.

Climate change is already affecting the frequency and severity of extreme events like droughts and floods, which in turn affects agricultural predictability and productivity, food prices, and the physical security of people and critical infrastructure and assets. It can also degrade **water quality** for human use – for example, as sea levels rise, saltwater intrudes into coastal aquifers and toxins concentrate in drying rivers. Poor management and rising demand for water also plays an important role in contributing to fragility and insecurity, but climate change is unambiguously worsening drought, scarcity and inequality.

Regions with weak governance, inadequate infrastructure and fragile institutions are more likely to experience **water-related conflict**[15] and migration and food insecurity related to water shocks. Whilst water stress is increasing worldwide, it is not likely to be used as a direct justification or declaration for conflict. More than 280 river basins worldwide are shared by two or more countries, which often leads to disputes between upstream and downstream countries.

> Climate change will increase the pressure on scarce water supplies in many basins, increasing the risk of tension. However, these disputes are not likely to lead to 'water wars.'

Of the almost **2,000 incidents** that took place in transboundary basins between 1990 and 2008, approximately twice as many events were cooperative.[16]

A key question has emerged: Will historical trends be a good guide to the future -or will the combined pressure of economic development, demographics and climate change prove too much for existing governance mechanisms and tensions that could lead to transboundary violence?

Conflict between states over water have been rare in modern history: rather, water scarcity is more likely to spark violence at the **local level.** However, states have been known to weaponize water control and infrastructure, as seen in conflicts in Gaza, Iraq, Syria, the West Bank, and Somalia.

> The **weaponisation** of water is expected to become more common in the coming decade.[17]

Water also has the potential to be a strong source of **international cooperation** with renewed focus on water as a central driver to achieve the SDGs and other global agendas like the Paris Agreement in the wake of the 2023 UN Water Conference.[18]

As climate change will only continue to increase water stress, enhancing the efficiency of water infrastructure, use and governance are key. This includes adequately uniting water policies with energy and global food system policies to ensure comprehensive action and increase resilience.[19] Responses must prioritise action around local analysis of water- and climate-related challenges and solutions and mobilise collective action and collaboration though centralising and sharing data and research methods.

[15]Devlen, L. et al. (2022). [16]Climate Diplomacy (n.d.). [17]Devlen, L. et al. (2022). [18.]Mosello, B. and A. Steinkraus (2023). [19]Whitaker, E. (2023).

Natural resource management and livelihoods

Climate change affects the availability of, access to and quality of natural resources such as land, water, soil, plants and livestock, which can contribute to conflict over **competing interests, changes in access to, and control** over these resources. Additional drivers of conflict can include contradictions between local and imposed natural resource management systems, unequal resource distribution and lack of clarity in policies and laws.[20]

TREND
As climate change increases the frequency and intensity of extreme weather events like droughts, wildfires and floods, conflicts linked to resource scarcity and competition will increase and intensify.[21] Most of these conflicts will take place at the local level in rural contexts.

In some countries, the pastoral economy can compromise up to 90 percent of all employment opportunities and 95 percent of family income and livelihood insecurity. The degradation of climate-sensitive natural resources and economic assets **like pastures, cropland, arable land, fishing grounds and livestock** drastically disrupt livelihoods that depend on these resources.[23] 80 percent of the world's poor depend on natural resources for their livelihoods and live in rural areas.[24]

Men, women, youth and other groups of people have different levels of **access, knowledge of and control** over natural resources. Livelihood and economic activities also vary by gender and identity group. Women are often more responsible to provide food and water and rely on public services differently to men and are more vulnerable to environmental stressors. These **identity-based barriers** often prevent women and other marginalised groups from owning land and earning income.[27]

Responses must focus on ways natural resource management can support livelihood diversification to help communities adapt to environmental shocks, strengthen social cohesion, revitalise rural livelihoods and increase availability of jobs. To address intersectional dimensions, capacity building projects can support excluded groups such as women, youth and the disabled through measures like managing savings and credit schemes, supporting women or youth-owned businesses, vocational training and offering job opportunities.[28]

[20] Matiru, V. and A. P. Castro (2022). [21] Whitaker, E. (2023). [22] Whitaker, E. and A. Steinkraus (2023). [23] Detges, A. and A. Foong (2023). [24] World Bank (2022). [25] Rüttinger, L., R. Munayer, P. van Ackern and F. Titze (2022). [26] World Bank (2022). [27] Cagoco-Guiam, R. (2013) [28] Kane, S. and V. Hickey (2023).

FIGURE 2

Whether increased competition over natural resources escalates into conflict depends on a number of risk factors[25]

>> **A history of conflict & fragility**
Civil war, ethnic rivalries, and interstate conflict often establish a culture of violence, weaken co-operative mechanisms, and make arms easily available.

>> **High dependence**
Groups that are highly dependent on specific supplies of natural resources and lack alternatives may be more likely to pursue coping strategies that could spur conflict.
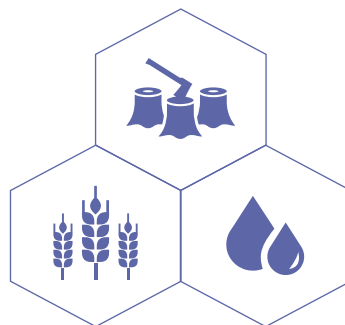
>> **Inequality & marginalisation**
Imbalances in power and rights can lead to differences in access to resources, which can entrench poverty and inequality. Inequality, or the perception of it, can spur conflict between the "haves" and the "have nots". Marginalised groups are often excluded from formal methods of resolving resource conflicts.

Source: Rüttinger, L., R. Munayer, P. van Ackern and F. Titze (2022). Adapted from The nature of conflict and peace. The links between environment, security and peace and their importance for the United Nations.

Environmental degradation and biodiversity

Climatic and non-climatic factors interact in a vicious circle.[29] Climate change can drive environmental degradation and biodiversity loss, leading to insecurity and exacerbated conflict, while conflict and insecurity contribute to environmental destruction and degradation.

TREND

In almost every region, population growth, rapid urbanisation, rising consumption, desertification, environmental degradation and climate change will combine to diminish biodiversity. Countries will face worsened water scarcity, food insecurity and deeper inequalities as a result.

Between 1970 and 2016, the global number of mammals, birds, amphibians, reptiles and fish species has declined by 68 percent[30] while about one million animal and plant species are on the verge of extinction across all of Earth's ecosystems.[31]

Whether caused directly by human action or indirectly by climate change, the degradation of environmental spaces and loss of land and marine biodiversity can affect peace and security through a number of pathways. In fragile contexts, without **livelihood alternatives** and safety nets for affected populations, any **price spikes** of food, farming inputs and cattle feed can quickly escalate into conflict and political instability, even putting the legitimacy of governments and governance arrangements into question.[32] This can lead to **displacement**, which can boost societal instability, marginalisation, discrimination, criminality and mistrust when not managed well.[33]

At the same time, insecurity contributes to environmental degradation. Wars and conflicts often interrupt **nature protection and restoration** activities, compromising local ecosystems. This is exacerbated by the fact that the maintenance of law and order is severely reduced or inexistent in such contexts.

Environmental crimes – such as wildlife trade and illegal extraction of oil, minerals and timber – constitute approximately 38 percent of the financing for illegal, non-state armed groups, including terrorist groups, thus strengthening criminal networks and further increasing insecurity.[34]

Conflict hotspots and war zones can also have high concentrations of rubble, chemicals and heavy metals which can **severely pollute** water, air and soil. This can be a result of attacks to infrastructure and military bases, as well as the **weaponisation of nature and resources,** including water poisoning, dam breakage or withholding of water flows, forest or ecosystem arson and the placement of landmines.[35]

In some regions such as in Asia and the Pacific, economic growth, which has helped reduce poverty, burdens ecosystems. Unsustainable consumption patterns have led to worsening air pollution, water scarcity and waste generation, threatening human and environmental health. Increased demand for fossil fuels and natural resources – extensive agriculture, palm oil and rubber plantations, aquaculture and the illegal trade in wildlife – are causing environmental degradation and biodiversity loss and increasing social inequalities.

Future economic and human security depends on harnessing natural capital sustainably while mitigating and adapting to climate change, and separate economic growth from resource consumption.

Responses to the risks of climate and environmental change to peace must be multi-faceted, addressing both the climatic-environmental and the socio-economic drivers of insecurity. This means investing in efficient resource use and ecosystem and biodiversity restoration while preparing populations to adapt to inevitable changes, such as by promoting livelihood alternatives.

[29]Rüttinger, L. et al. (2022). [30]Almond, R.E.A. et al. (2020). [31]Brondizio, E. et al. (2019). [32]Climate Diplomacy Factbook (n.d.). [33]Detges, A. et al. (2022). [34]Nellemann, C. et al. (2018). [35]Weir, D. (2017).

Migration and displacement

Climate change contributes to the movement of people through a variety of means, and when people move to communities that are already underserved, stretching governance capacities, resources and services, this can create tension and conflict.

TREND
More people facing loss of livelihoods and liveability in highly climate exposed locations will move to urban centres. Already fragile urban contexts will experience increasing socio-political tensions and political mobilisation as the groundswell catalysed by climate change compounds widening economic inequality, and strains governance and service delivery, especially among marginalised populations. Climate change will amplify existing migration patterns.

There are considerable misconceptions about why people move, how many move, and what effects these migration patterns have. Often, huge predictions of mass migration are made, yet the evidence points to a more nuanced reality. Most movement will be within-countries, from **rural to urban** settings, a trend which is projected to increase. While rapid-onset disasters typically lead to short-term displacement, people may decide to move permanently or go farther away if events recur repeatedly or cause massive damage. Currently most migration is **temporary** rather than permanent, but this trend will likely change as over time, as climate impacts reduce the viability of returning.

Whilst the reasons people move, like the links between migration and climate change, are complex, multifaceted and context-dependent, evidence shows that climate-induced **environmental pressures, livelihood stress and weakening governance** increasingly affect migration patterns.

Individuals might choose or be forced to migrate, either in direct response to climatic impacts or as an indirect response to climate related **stresses to livelihoods.**[36] The likelihood of migration also depends on communities' ability to adapt to the impacts of climate change, which can be met by adaptation measures such as increasing individuals' access to resources (including transportation, social networks, and legal pathways).

The world's **urban population** is projected to double between 2015 to 2050, in part because people from rural areas whose lives and livelihoods are undermined by climate change are being driven to cities in search of economic and social stability. But many of the world's rapidly-growing cities are already struggling to handle their own climate issues. From rising seas to freshwater scarcity, the interaction between climate change, population growth and fragility in cities has made them hotbeds for **social and economic inequalities** — increasing the risk of violence and having a profound impact on human security in urban centres around the world.

Some people cannot move. Climate change and its impacts can also trap the most vulnerable populations, including women, youth, the elderly and those with disabilities, who lack sufficient resources or rights to move.[37]

> Mobility itself is not inherently a risk. It can serve as a positive coping strategy and be an important **driver of economic development.**[38]

Responses to climate-related migration and displacement must ensure the protection of and durable solutions for persons affected by climate change to be able to move safely and with dignity. It is also important that responses assess cohesion.

Assessing social cohesion in situations of climate-related mobility and displacement can be challenging and requires **context-based indicators,** including of perceptions and subjective experiences. Assessments should disaggregate demographic and social groups to understand differentiated experiences and challenges.

Responses call for: investing in **inclusive and context specific processes** to better understand the drivers of climate migration and inform well-targeted policies; **better rural-urban connectivity** through markets, provision of internet access, energy and transport infrastructure; more **comprehensive urban plans** to address projected population changes arising from climate impacts in rural areas and integrating climate change and internal migration trends into climate security risk informed development planning.

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[36]Ginetti, J. et al. (2019). [37]Cattaneo, C. et al. (2019). [38]Bosetti, V. et al. (2018).

Governance and maladaptation

Climate change – whether through rapid-onset events like floods and storms, or through more slowly moving processes, such as droughts, sea level rise, and temperature change – can compound existing governance challenges and contribute to the fragility of areas already experiencing or vulnerable to armed conflict and violence.

TREND
Where governance institutions in fragile contexts are unable to provide timely and equitable support or safety nets to deal with the impacts of climate change, more people, especially young people, will choose unsafe coping strategies like illegal logging or joining armed groups.

By recognising the links between climate change and existing social, economic, and governance challenges, programming can help build resilience and stability. Factors such as **stronger local governance, bolstering trust** between governance providers and communities, and **building social cohesion** can influence success in mitigating the effects of climate impacts and conflict.[39]

Stronger state capacity, at least in some cases, can reduce the likelihood that climate variability compounds conflict. Specifically, the capacity of states to prevent, mitigate and respond effectively and equitably to social and economic challenges brought about by climate change may in large part determine whether violence occurs. This indicates a clear role that **effective local governance** can play in mitigating and responding to climate-influenced conflict drivers.[40]

In the absence of effective support from governance institutions, when people and communities don't have support or safety networks to deal with the impacts of climate change, they may **maladapt**. This risk is higher in fragile and conflict-affected countries and communities, where governance is often already strained, and could exacerbate insecurity.[41] For example, to maintain their livelihoods, farmers struggling to make ends meet can turn to illegal production (i.e. poppy farming for opium production,[42] illegal coca and marijuana production) out of necessity, **strengthening criminal networks** and contributing to the expansion of armed groups.[43] Degradation of natural resources can also result in picking up unsustainable economic activities like informal and illegal logging[44] and mining.[45]

While state actors have the potential to mitigate risks, they may also play a key role in exacerbating climate security risks. Rent seeking behaviour and corruption by state authorities often allow for the **overexploitation of resources** and **undermine trust** between government and local communities. Extreme weather events challenge **government effectiveness and legitimacy** -increasing grievances against governments when they are unable, or in some cases unwilling, to provide adequate protection or relief during emergency situations. Even well-intentioned but poorly designed climate and security policies carry risks and can also **bolster recruitment and support** for armed opposition groups.

Mitigation and adaptation policies must take account of the ways in which not just climate change, but also responses to climate change, affect power dynamics, creates new winners and losers and can reinforce inequitable structures in order to avoid negative outcomes and foster more equitable and inclusive ones.

The concepts of 'conflict sensitivity' and 'anticipatory governance' are imperative approaches for exploring how to foster governance capacities to **first, do no harm,** and **then to plan and programme for change and uncertainty.**

Investing to **strengthen governance capacity** of local institutions should be a priority to create an enabling environment for peace and climate resilience. This should involve connecting locally led solutions and governance structures with the **financing, knowledge and capacity support** required to address climate change and conflict. Priority should be placed on addressing sub-national, national and transboundary challenges, with accessible financing to address systemic underlying drivers of conflict and climate vulnerability such as marginalization, poor governance, or inequitable national policies around, for example, land use and agricultural production.

[39] MercyCorps. (2020) [40] Ibid. [41] Climate Diplomacy Podcast (2023). [42] Brown, O. (2019). [43] Nett, K. and L. Rüttinger (2016). [44] Van Ackern, P. et al.(2023). [45] Buderath, M. et al. (2021).

Social cohesion and identity

Climate change impacts can erode social cohesion which leaves people less able to cope with shocks posed by both climate change and conflict.[46]

TREND

Climate change will continue to be both a symptom and cause of declining social connection and community cohesion which poses an obstacle to both peace and climate resilience. Climate will continue to be co-opted by political groups to fuel political tribalism which can hamper climate action and fuel political grievances, particularly in the West, whilst the loss of social bonds due to climate stress or climate-related mobility can also drive conflict.

Social cohesion – the social fabric of a community, linked **to shared values, identity and sense of belonging** – has been increasingly recognised as important in relation to development, conflict, and human mobility, and now most recently, to climate change. Research is increasingly documenting how climate impacts and climate-related mobility are impacting social cohesion – both positively and negatively. Negative climate-related impacts to social cohesion include those to **social relations and support networks.** Climate-related stress has, for example, undermined systems of mutual support that strengthen social bonds within a community, provide improved livelihood outcomes, or provide coping mechanisms, e.g. through customary food sharing in times of need, or credit-sharing schemes.[47]

Positive social cohesion outcomes have also been documented. For example, extreme weather events have catalysed **community mobilisation and mutual support**. This reaffirms other examples of increased forms of social cohesion in times of crisis, both in the aftermath of extreme events and conflict-related displacement.

Climate policy and programming interventions can negatively affect social cohesion, especially when there are **perceptions of unfairness** between groups, and should avoid reproducing existing forms of marginalisation and inequality.

Within the international response, social cohesion is linked to climate change and response through '**loss and damage,**' as a form of non-economic losses and damages. This was previously fairly limited, for instance under fields of **cultural heritage and indigenous local knowledge**. But emerging findings indicate it is a broader issue, also linked to additional aspects of loss and damages including mobility, identity, culture, mental health and sense of place.[48]

Recognition of negative impacts to social cohesion as non-economic losses places more emphasis on the intrinsic value of social cohesion, rather than its instrumental value in improving **livelihoods and resilience.** Both are important for communities and response efforts.

Losses and damages are also recognised as highly context- and value-based, which is very much the case for social cohesion. A context-specific value-based approach will likely support more relevant and successful efforts to assess and address losses of social cohesion.

Responses must take a **people centred approach** over a techno-fix centred one and consider power structures that enable vulnerabilities. **Participatory approaches, co-production with local communities,** using data that is broken down by detailed sub-categories in analysis and including affected communities, with particular attention to marginalised groups, in research can lead to locally-anchored responses.[49] This approach helps ensure no one is left behind. It is also important to understand the relationships between social cohesion, social protection and climate change mitigation, such as carbon taxes. For example, trust in government is crucial for public support of climate policies.[50]

[46]Vivekananda, J. et al. (2019). [47]Detges, A. and A. Foong (2023). [48]McMurray, S. et al. (2023). [49]Potts, M E. et al. (2023). [50]Klenert, D. et al. (2018)

Evidence and insights from around the world

AFRICA

While Africa is one of the lowest contributors to global greenhouse gas emissions, it is one of the most affected and most vulnerable regions. Climate change has already caused significant harm to b**iodiversity, water security, food production, life, health, and economic growth** on the African continent. It also exacerbates existing **political, peace and security, socio-economic and development challenges.** Climate security risks are projected to worsen over the coming decades, especially affecting women, children, youth and the elderly.

Natural resource management and livelihoods

There is increasing competition over **natural resources**, leading to tensions and conflicts over **water, fisheries, forests and land** across Africa.[51] Climate impacts are compounding other pressures on natural resources such as land, water and forests. As the access and availability of resources is changing, not only farmer herder conflicts, but also conflicts between **pastoralist groups** or between **farmers and fisherfolk** are major challenges across the continent. Livelihood insecurity sometimes also drives maladaptation and coping mechanisms like deforestation, poaching, illegal fishing and mining.[52]

In **East Africa**, pastoralism accounts for **75-90 percent of livelihoods** in semi-arid and arid regions.[53] The agricultural sector constitutes the most important sector in terms of employment in the region, especially smallholder farmers suffer from climate impacts, all of which can lead to **crop failures** and reliance on food assistance programs.

Food price shocks and food insecurity

Africa's agriculture sector accounts for approximately 35 percent of the continent's gross domestic product, and provides the livelihood of more than 50 percent of the continent's population. These shares are more than double those of the world average and much higher than those of any other emerging region.[54]

Climate impacts have reduced productivity growth of crops and harvests across all the continent. With nearly 20 percent of its population affected by hunger, Africa has globally the largest percentage of population affected by **food insecurity.**[55] African food systems are highly dependent on imports and global markets, making them vulnerable to global food price crises.

In **East Africa**, the longest and most severe **drought** on record continued into its fifth rainy season leading to **2.1 million displaced in Somalia, Ethiopia and Kenya.**[56] It has led to severe food insecurity, water shortages, agricultural and livestock losses, and acute humanitarian crises in the region.

Yet, with an abundance of labour, land and untapped water, some African policy makers see the continent has the potential for a **massive expansion of agricultural production.**[57] With careful climate and conflict investment and upgrading to higher value farming-related commercial activities, agriculture can be the core of the continent's **economic transformation.**

Critical minerals and the energy transition

Approximately 30 percent of the world's mineral reserves necessary for the **energy transition** are in Africa.[58] Multinational companies exacerbate challenges around governance and natural resource management when they engage in **rent-seeking practices and corruption** that drive environmental degradation.[59] Revenue generated by mining mainly provide revenue for select elites without generating value locally and creating means for sustainable development. Throughout **Central Africa**, the mining sector is still poorly

[51]Rüttinger, L. et al. (2024). (forthcoming) [52]Foong, A. et al. (2020). Scales and Friess (2019). Rüttinger, Rüttinger, L. et al. (2024). (forthcoming) [53]Whitaker, E. and A. Steinkraus (2023). [54]Ruettinger, L. et al. (2024). (forthcoming) [55]FAO et al. (2023). [56]Internal Displacement Monitoring Centre (2023). [57]H.E. Musalia Mudavadi, Prime Cabinet Secretary, Republic of Kenya, BCSC Nairobi Opening Statements, 6 July 2023. [58]South African Institute of International Affairs (2022). [59]Sonno (2023). Rüttinger, L. et al. (2024). (forthcoming)

regulated and is a key driver of human rights violations and conflict.[60]

Migration and displacement

Seasonal, circular, cross border, and short-term migration are a long-standing practice in many African countries. Overall, the type of migration that is most impacted by climate change is migration within countries. **Cross-border migration** is also mainly contained within the same region.[61] As climate risks increase, these patterns shift to longer, more permanent southward and rural-urban migration. With respect to conflict potential of these trends, there are significant regional differences: while member states of **ECOWAS**[62] can move freely and integrate into local labour markets, there have been many instances of anti-migrant and refugee violence in **Tunisia**. There have also been conflict dynamics over resource scarcity with **African island states** in the south-west Indian Ocean. Fast growing cities are emerging as climate security hotspots throughout the continent.[63]

Governance and maladaptation

Non-state armed groups actively exploit climate security risks and governance issues. Where state institutions are weak and corrupt, non-state armed groups such as militias, terrorist and criminal groups can use the gaps left by the state to provide services and governance. In **Somalia**, Al Shabaab has been increasingly restricted humanitarian aid activities in communities affected by droughts and exploited local resources to further consolidate power.[64] In **central Mali**, armed groups have established themselves as providers of conflict resolution mechanisms and access to justice for disputes over natural resources.[65] In the past, the Ahlu Sunnah wa-I-Jama'ah has offered their own religious education in attempt to gain legitimacy, especially among youth, in marginalised and poverty-stricken areas of northern **Mozambique.**[66]

In **North West Nigeria**, in the face of decreasing crop yields, unpredictable precipitation, droughts, and increasing demands on grazing and agricultural lands, both agrarian and pastoralist groups are increasingly unable to pursue traditional livelihoods. In rural areas, **informal mining** is an important means of **income diversification** for many farmers, and addressing both agriculture

and mining issues is necessary for lasting impacts on development. In areas with distinct dry and rainy seasons, artisanal mining allows farmers to generate income during the dry seasons while farming during the rainy season. Due to declining value of many export crops, loss of agriculture input subsidies, and changing weather patterns, off-season workers increasingly rely on mining. On the other hand, informal and formal mining industries impact and are impacted by climate change. Mine operations, and associated **deforestation**, are contributors to greenhouse gas emissions and fuel concerns over water scarcity and increasing threats to tailings dams from extreme weather events. Mining can thus be a driver of climate risk and a source or climate resilience, but the issue is insufficiently analysed and there is little support for artisanal miners to support better, safer and more environmentally sustainable practices.

Early warning and early action

African actors, at different levels, have developed early warning and early action systems. However, only approximately 40 percent of African countries have functioning early warning systems because of **poor access to and availability of reliable data.**[67] Challenges include limitations in hydro-meteorological infrastructure and services and multi-hazard monitoring capacities, horizontal siloes, lack of harmonisation between climate and weather-focused early warning and conflict early warning, vertical integration and integration of local knowledge and data.[68]

[60]WWF (2023). Rüttinger, L. et al. (2024). (forthcoming)
[61]Africa Center for Strategic Studies (2023). Rüttinger, L. et al. (2024). (forthcoming) [62]ECOWAS member states include Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. [63]Rüttinger, L. et al. (2024). (forthcoming) [64]Maystadt, J.-F. and O. Ecker (2014). [65]Ursu, A.-E. (2018). [66]Hamming, T. R. (2021). Pirio, G. et al. (2019). [67]United Nations Office for Disaster Risk Reduction (2022). [68]Rüttinger, L. et al. (2023).

PACIFIC

Climate change impacts, including **sea-level rise and coastal erosion,** pose significant security risks across the Pacific region, and to the 12 million people who live there, proceeding at an even faster rate than the global average. Climate impacts are affecting **governance, identity and culture, livelihoods, social cohesion, migration, food security, water security and health.** Many efforts in the Pacific region are centred around the 2018 Boe Declaration on Regional Security, which specifically describes climate change as the *"single greatest threat to the livelihoods, security and well-being of the peoples of the Pacific."*

Livelihoods

75 percent of Pacific Islanders will be directly impacted by climate effects on subsistence economies -in some remote communities, it could affect 100 percent of people. **Economic challenges** include small markets, geographic remoteness, high import and transportation costs, low formal sector opportunities and high informal sector participation, high unemployment and reliance on foreign aid. As a result of these challenges, governments often feel pressure to find **alternative income streams** and diversify their economies. This can include developing alternatives that come with them their own social and environmental risks, such as **expanding mining or seizing land** in favour of private businesses.

Negatively impacted f**isheries and agricultural activities** increase livelihood insecurity and erode social cohesion, which affects women, the (urban) youth and remote communities disproportionately.

Environmental degradation and biodiversity

Commercial **fisheries** face low stocks of fish because of **warming seas and increasing ocean acidification.** Reefs are in particular under threat with coral reef cover around the main island of Upolu in **Samoa** was below 1 percent cover at half of the sites that were explored, compared to below 10 percent at three-fourths of the sites explored 2 years prior. In addition to the livelihood impacts coupled with coastal erosion and human activities, **ecosystems and biodiversity** are also negatively impacted. Biodiversity loss also has

negative consequences for the region's rich natural beauty, which drives the **tourism economy**. Climate change induced disasters also make it difficult for businesses to operate.

When done incorrectly, efforts to reclaim land and provide relief in urban areas can contribute to ecological degradation (i.e. dredging and sea walls can lead to increased coastal erosion). Loss in land intersects and worsens **food and water security and health risks**, as increased food insecurity creates reliance on imports, which are often low in nutrition and high in calories.

Social cohesion and identity

The combination of climate-related challenges, such as scarcer natural resources and livelihood challenges are increasingly **overwhelming social norms and eroding social cohesion.** The degree by which Pacific Island States are affected, however, is varied. For instance, while precipitation patterns are likely to continue to decreases in **French Polynesia** and the southern subtropics, they are likely to continue to increases in the northwest and southwest Pacific. From all the Pacific Islands, low-lying atoll nations, such as **Kiribati, Tuvalu and the Republic of the Marshall Islands,** are at particular risk for sea-level rise. If left unexplored and unaddressed, these interactions could cause further social discord, leading to **social or political instability**, or even violent conflict.

Land is intrinsically tied to the self for Pacific Islanders and **customs, norms, rituals, and traditions** are embedded within that land and its food and water systems. Increased livelihood pressure, **food and water insecurity** are putting pressure on livelihoods and eroding social cohesion. Throughout the Pacific, social norms like **collectivism and sharing** are also weakening under these pressures. As social ties within families erode, higher instances of domestic violence can also be observed.

Migration and displacement

Historically, socio-economic factors, including **access to education, employment and health services**, have driven mobility within the Pacific. **Migration** tends to be internal and from rural areas to urban settings, increasing **urbanisation**

and challenges associated with it like less land availability and usability, straining water and food resources and an increase in petty crime and straining of social ties.[69] Climate change and its impacts are increasingly becoming a factor in migration. **Sea-level rise, coastal erosion, and extreme weather events,** such as storm surges, droughts, and flooding, adversely affect the availability and usability of land for the vast majority of people in the region.

97 percent of Pacific Islanders live within 10km of the coast -and 30 percent live within 1 km of the coast. In addition to worsening **food and water insecurity** and exacerbating tensions (especially within families where land is often shared with extended families), growing competition over land also limits availability for disaster displacement or relocation.

The cost of migration is high and comes with challenges and risks, which can increase disparities, increase vulnerabilities and also create tensions between people who are able to move and those who are not. Over 70 percent of households in **Kiribati** think international migration will become a necessary adaptation response. This reinforces challenges to **identity, wellbeing and community,** as Pacific Islanders have strong physical, socio-cultural and ancestral connections to land.

Climate justice and solidarity

Disasters driven by climate change can lead to **high debt burdens,** as countries in the Pacific need to finance disaster preparedness, response and recovery. Government inability to prepare for these things can create an economic situation where trade-offs between social investment and preparing for disasters and recovery, which can **fracture social cohesion and grievances**. Economic losses per year that result from climate-induced disasters in Pacific Small Island Developing States is estimated to be USD $1.075 billion, which is 5 percent of combined GDP,[70] and in the most affected states, average annual losses can be 20.67 percent of

GDP. Countries in the Pacific have been long-time advocates for **climate justice,** specifically through financial support. As debt burdens increase across the Pacific, instruments like the **loss and damage fund** and UNGA resolution 77/276 on the obligations of States in respect of climate change[71] could be two ways to support climate justice.

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[69]McMurray, S. et al. (2023). [70]McMurray, S. et al. (2023). [71]UNGA (2023).

LATIN AMERICA AND THE CARIBBEAN

While the climate crisis poses wide-reaching, complex issues for Latin America, the region's key challenges can be broken into two major pillars. First, gradual impacts such as the **melting Andean glaciers** and the **degradation of the Amazon rainforests** disrupt productive patterns and **socio-economic structures.** On the other hand, climate variability leads to unpredictable weather patterns and more frequent extreme weather events. Unsustainable **resource management** could exacerbate these challenges, particularly in the **Andean, Amazon, and Central American regions.**[72] In the **Caribbean,** most countries, which consist of small island developing states, have long experienced the impacts of hurricanes, severe weather events, drought and sea level rise, which are adding to the pressure of population growth and urbanisation on **land, food, water and energy resources.**[73]

Livelihoods

Inadequate disaster risk management and the impacts of climate change are driving people in **Haiti** to find **alternative livelihoods,** that often have social and environmental risks. Many farmers in Haiti are forced to resort to agricultural practices that are unsustainable or damaging to the environment, like slash-and-burn farming that drives **deforestation, soil degradation and biodiversity loss.** As it becomes increasingly difficult for people to live off agriculture, they face the need to move from rural areas to urban centres and finding new livelihoods all together. Since 2021, **urban violence** has reached extreme levels, as competition over lessening resources and overcrowding in slums with poor water, hygiene and sanitation and gangs, some Haitians have begun to return to rural areas, further increasing pressure on resources.[74]

Environmental degradation and biodiversity

The **Amazon** faces a twin crisis of human rights and the environment.[75] The inefficient implementation of the peace treaty with the Revolutionary Armed Forces (FARC) in **Colombia** created a power vacuum that enabled land grabbing and unsustainable **exploitation of natural resources**.

Simultaneously, the impacts of climate change have increased unpredictability in rainfall patterns, soil degradation, floods and higher temperatures. The Colombian case shows how **environmental degradation** reinforces insecurity while climate change's impact on livelihoods drives people towards **illegal coping mechanisms.**

In **Haiti**, political economic and humanitarian crises along with a history of poor **natural resource management and colonial exploitation** have led to environmental degradation, which push people into harmful practices, including environmental crimes, and worsen competition over natural resources. Environmental degradation also drives internal and external migration.[76] In **Haiti**, migration is not only a geographic phenomenon of flows of people from rural to urban areas (and vice versa) or leaving the country entirely. **Migration** between subsistence systems has increased because of the impacts of climate change, meaning many Haitians can be described as climate migrants.[77]

Migration and displacement

In **Latin America**, rural-urban migration or international migration, in the search for economic opportunities, contributes to **marginalisation and social tensions** in host communities. The lack of opportunities increases the probability of engaging in criminal activity and insecurity in cities.

Being part of the Central American Dry Corridor, **El Salvador** faces irregular rainfall, drought, poverty, lack of opportunity, violence, and insecurity. Weak governance and limited capacity to adapt leave **vulnerable rural populations** neglected. As a source of remittances, **emigration** to the United States has been a key adaptation strategy.[78]

Social cohesion and identity

Poverty and marginalisation, through the unequal distribution of aid by state services, whether real or perceived, can contribute to **social tensions.** A rising tension between creating revenue from

[72]Morales Muños, H. C. (2022). [73]Fuller, C. et al. (2021). [74]Schmelzer, N. and B. Mosello (2023). [75]Buderath, M. et al. (2021). [76]Mosello, B. et al. (2023). [77]Schmelzer, N. and B. Mosello (2023).

environmentally and socially harmful practices to sustain economic growth and the necessity of mitigation and **adaptation strategies**. Food insecurity, unemployment and poverty, can lead to involvement in illegal economies, social unrest, migration and resource competition.[79]

In **Guatemala**, indigenous peoples are disproportionately affected by climate change. Due to their ethnicity, gender, and low income, their livelihoods, social cohesion, and identity is at stake.[80] However, indigenous women, being custodians of ancestral knowledge, are emerging as front-line environmental defenders advocating for **adaptation through indigenous practices** such as seed exchange, agricultural calendar adjustments, and the milpa system, cultivating maize alongside other species.

In **Haiti**, as people are driven to leave their communities and families by the pressures of climate change and environmental degradation, coping mechanisms that were built on **social cohesion and mutual aid** are worn down, leading to less capacity to withstand climate security risks.[81]

Critical minerals and the energy transition

Critical mechanisms for mitigating the adverse impacts of these minerals include advanced planning, early action for adaptation and inclusive economic development based on sustainable resource governance. Moreover, **Responsible Business Conduct** (RBC) could prevent conflicts arising from the increased demand for **critical minerals** in Latin America.[82] As a substantial amount of identified lithium, which is crucial for renewable energy, is found in the region, it plays a significant role in the global green transition. Effective **environmental management systems** are essential to avoid maladaptation and ensure sustainable mining practices.

[78]Rosa Chávez, H. et al. (2023). [79]Abdenur, A. E. and L. Rüttinger (2020). [80]Politically Speaking,(2022). [81]Mosello, B. et al. (2023). [82]Morales Muñoz, H. C. et al. (2023).

MIDDLE EAST AND NORTH AFRICA

As well as one of the regions most affected by violent conflict globally, the Middle East and North Africa (MENA)[83] is one of the most vulnerable regions in the world to climate change.[84] The Middle East is warming at almost twice the rate of the global average with temperature increases in many countries, like Jordan, Yemen, Saudi Arabia, and others, already well surpassing the Paris Agreement's commitments keep warming to 1.5°C above pre-industrial levels.[85]

Its **natural water scarcity** is being exacerbated by climate-induced record low levels of rainfall, increases in temperature, and exposure to heatwaves that drive desertification and reduce water supply. With its high reliance on **food imports** and significant portions of its agriculture being rainfed, the region is vulnerable to price volatility and food insecurity, with protests and political conflict frequently erupting over the price of food.[86] Meanwhile, weak economies, competing government interests, fractured populations, and inter-state tensions limit the capacity of many MENA states to both mitigate and adapt to climate change.[87] Conflict in the region, including the **Syrian Civil War,** the **occupation of Iraq by ISIS,** and decades of Israeli-Palestinian conflict has led to significant and long-term displacement.[88]

Critical minerals and the energy transition

The MENA region is recognised for its extensive **fossil fuel** reserves, providing revenue to countries but opening the region to risks of stranded assets in the global energy transition. Fossil fuel exports accounted for over 25 percent of GDP in the region in 2016.[90] This figure is even higher for individual countries, with **Iraq** receiving 85 percent of its government revenues through oil exports.[91] Without a strategic diversification of revenues, the global energy transition will be highly destabilising for oil exporting countries, posing a risk of stranded assets and economic losses.[92] Lost revenues for social spending and reduced geopolitical influence are risks to regional stability.[93]

Food price shocks and food insecurity

Food insecurity is a major pathway linking climate change impacts to instability and conflict in MENA. **Price volatility of food supplies** is of particular concern. For example, widespread, consecutive years of drought across crop-growing areas in the region conjunction drove price volatility and migration, leading people to take to the streets in protest during the **Arab Spring**, which, when met with authoritarian clamp down and exploitation by non-state armed groups, contributed to increased regional instability, including civil wars.[94]

In **Iraq** agricultural productivity dropped from 26 percent of GDP in 1995 to 6 percent in 2020, during which time the country has shifted from a food-producing to food-importing country.[95] Contributing to this transition was rural community **displacement** during the rise of the Islamic State and crises in Iraq and Syria.[96] As of 2020, 731,000 out of the 6 million people affected by conflict in **Iraq** were food insecure.[97] Major drought in 2021 led to approximately half of families requiring food assistance.[98] **Agricultural problems and food insecurity** threaten security by negatively impacting livelihoods and unemployment, driving migration and contributing to political unrest.[99]

Migration and displacement

By 2050, it is expected that 723.6 million people will live in the MENA region, more than double the number at the beginning of the 21st century.[100] While high populations do not pose a security threat in and of themselves, the combination of very high numbers of people with climate impacts poses a severe risk to human security. Rural-urban migration is likely to increase, a significant challenge as the Middle East is already one of the

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[83]The Africa chapter 3.1 also covers the region of North Africa. However, the region is also included in this chapter 3.4, as many analyses include North Africa along with the Middle East, this synthesis report has done the same. [84]Giordano, G. and L. Rüttinger (2021). [85]The World Bank (2023) [86]Bentley, R. et al.(2022). [87]Giordano, G. and L. Rüttinger (2021) [88]Binder, L. et al. (2022a). [89]IRENA (2019). [90] Ibid. [91] Binder, L.isa et al., (2022a).[92]Ibid [93]IRENA (2019). [94]Devlen, L. et al. (2022). [95]Binder, L. et al. (2022a). [96]Ibid. [97]Ibid. [98]Ibid. [99]Giordano, G. and L.s Rüttinger (2021). [100]Statista (2020).

most urbanised areas in the world. Moreover, these cities are concentrated along the region's coast and are therefore highly vulnerable to sea level rise. Pressure is likely to increase on resources such as water, food, and land, increasing competition.

Ten years of civil war, in combination with recurring extreme weather events, has led to the internal **displacement of approximately 4.5 million Yemenis,** 13 percent of the total population.[101] A matter of human security in itself, displacement has had several other consequences for climate-related security in Yemen. **Tensions have arisen between landowners and displaced communities**, a problem set to rise as desertification further reduces the availability of arable land. A lack of strategy on the placement of migrant camps has also been a serious problem, with settlements built in areas that **formerly protected communities from floods** naturally, exacerbating floods and driving further displacement.

The occupation of **Iraq** by ISIS from 2014 to 2017 led to the **internal displacement** of 3 million Iraqis, with a further 260,000 people seeking refuge in neighbouring states.[102] Environmental factors have subsequently driven further displacement in the country, with more than 21,000 Iraqis from southern and central Iraq leaving their homes in July 2019 due to water shortages. Rural-urban migration is also growing in **Iraq**, with a lack of available jobs exposing vulnerable populations to **armed group recruitment**, and other security risks.

Jordan is a major receiving country for displaced persons in the region, particularly refugees from the wars in **Iraq** and **Syria**, with more than 676,000 Syrian refugees officially registered as of 2022.[103] Other estimates put this figure is much higher, with approximately 1.3 million Syrian refugees in **Jordan** and a further 1.5 million in **Lebanon.[104]** The large refugee population puts strain on **limited natural resources and public services** in **Jordan.[105]**

💧 Water governance

Water stress is a critical challenge in MENA region. **Jordan** ranks fifth globally in level of water stress.[106] Jordan's per capita water availability in 2030 is estimated to be between 5-38 percent of the threshold for water scarcity under different emissions scenario.[107] Climate models

also predict decreases in **annual precipitation** of 2–20 mm by 2030 under a medium-high emissions scenario[108] As more than half of Jordan's agricultural land is rainfed, this is worrying for **agricultural production.[109]**

Meanwhile, the portion of **agricultural land that is irrigated** is a major consumer of water, with more than half of Jordan's **freshwater resources** going to the sector, putting significant strain on limited water resources.[110] Achieving **climate-smart** agriculture that is resilient to changes in precipitation and efficient in use of water resources is needed as the sector employs a quarter of the population, making it critical for **livelihoods.[111]**

Regional water sharing agreements exist between **Jordan** and both **Syria** and **Israel**, but tensions remain over water withdrawals, with **Jordan** negatively affected by upstream water development projects.[112] Water flow in the lower Jordan River has declined by nearly 90 percent as a result of Israel's upstream water management.[113] **Israel** and **Jordan** signed a **water for energy agreement** in November 2021, under which **Jordan** is to provide 600 megawatts of solar energy to **Israel** in exchange for 200 million m³ of desalinated water.[114]

In contrast, in another major transboundary river basin in the region, the **Euphrates and Tigris river basin,** has been a flashpoint of regional tension between Turkey, Iraq, Syria and Iran. **Iraq** is a downstream water recipient and the supply of water reaching it has declined in the past decades due to the construction of dams and power plants in **Turkey** and **Syria**, contribution to regional tensions over **transboundary water management.[115]** Meanwhile, water has been routinely weaponised by powerful states, with Turkey withholding Syria's water supply during conflicts.[116]

[101]Barry, S. et al. (2023). [102]Binder, L. et al. (2022a). [103]Binder, L. et al. (2022b). [104]Binder, L. et al. (2022a). [105]Bentley, R. et al. (2022). [106]Ibid. [107]Ibid. [108]Ibid. [109]Ibid. [110]Binder, L. et al. (2022b). [111]Ibid. [112]Ibid. [113]Ibid. [114]Ibid. [115]Ibid. [116]The Water Diplomat (2021).

9 Opportunities to strengthen peace and resilience in a changing climate

1. Global financial reform, climate justice and solidarity

The establishment of the **loss and damage fund** at COP27, the **declaration on climate, relief, recovery and peace** at COP28 and action-oriented multilateral initiatives like **Climate for Peace** reflect opportunities to address the disproportionate impacts of climate change on countries and people who have emitted the least, make needs clear and match the supply and demand for implementing projects. Investments in climate finance for fragile and conflict affected countries, in addition to pursuing climate justice, present an opportunity to yield peace dividends.[117]

High income countries should demonstrate solidarity by meeting the $100 billion climate finance commitment to the loss and damage fund, further increase the scale of financing and conducting monitoring and evaluation to ensure the intended impacts are being achieved.[118] An **accountability mechanism** on multilateral climate action should be developed to increase trust in the system.[119] Finally, climate finance should be made accessible to fragile states where it is greatly needed, to **avoid widening gaps in access.[120]** Commitments and pledges made by institutions like the Green Climate Fund, the Islamic Development Bank and the World Bank at the launch of the declaration on climate, relief, recovery and peace at COP28 to deliver more climate finance to fragile contexts as well simplifying the process, making it **quicker and easier** to access funds need to be realised. The interests of affected states and communities also need to be elevated in international processes like COP and in climate security discourse, including analysis and research design.

2. Critical minerals, environmental degradation and biodiversity

Given the expected six-fold increase in demand, governments should ensure conflict sensitivity is a requirement for all climate financing for clean energy to mitigate the risks associated with **environmental degradation and conflict over water, land use, and lack of community participation.**

This can be done through measures like establishing Responsible Business Conduct (RBC) frameworks. RBC in the extractive and minerals sector with **risk-based due diligence** can anticipate and avoid environmental degradation and conflicts, and provide a channel for community engagement[121]. In the absence of government frameworks, the private sector itself should pursue RBC to secure a social license to operate.

States should further pursue **equitable benefit sharing** of the revenues generated through mining[122] operations by investing revenue in social spending, poverty reduction, and local infrastructure in communities affected by mining. Examples include Colombia earmarking 10 percent of mining royalties for research and development and Peru reserving 20 percent of its "mining canon" financial mechanism for regional universities.[123]

In addressing environmental degradation, it is important to avoid context-insensitive, top-down approaches and be aware of **customary law** around land management.[124] This helps ensure any environmental or natural resource management projects are aligned with existing systems, and are inclusive, conflict- and gender-sensitive to maximise local stakeholder, in many cases Indigenous, ownership. Pursuing programmes that both restore the environment and offer **alternative livelihood opportunities** is another opportunity. Regreening programmes such as tree planting and agroforestry can restore soils and ecosystems and limit the effects drought, flooding, and water runoff, building local resilience to climate-related shocks.[125]

3. Food prices, agriculture and livelihoods

To mitigate the risks of climate-induced declines in agricultural productivity and increases in food prices and price volatility contributing to instability in fragile contexts, investment in

[117]Devlen, L. et al. (2022). [118]Ibid. [119]Ibid. [120]Ibid. [121]OECD (2022). [122]Morales Muñoz, H. C. et al. (2023). [123]Ibid. [124]Destrijcker, L. et al. (2023a). [125]Ibid.

climate-smart agriculture should be pursued. Governments should take a forward-looking approach to anticipate potential price spikes and take early action to safeguard against them, for example with **regional governance mechanisms** that define responses ahead of crisis situations.[126]

Linking adaptation of food systems and livelihoods to peacebuilding can increase resilience and sustainable peace. Investments in **livelihood strategies**, like all activities related to and support pastoralism, including **regenerative agriculture models,** as well as environmental and ecosystem restoration are needed.[127] Livelihood diversification should also be pursued to build resilience of people working in climate-sensitive sectors such as agriculture and pastoralism. A portfolio of sustainable livelihood options should be promoted, for example more diverse and climate-resilient crop varieties, agropastoralism and agroforestry, and a range of vocational training options.[128]

4. Migration, displacement and livelihoods

Reponses to increased climate-related displacement should centre around supporting **climate-proof** livelihoods and **safe migration** with dignity, taking into special consideration, the protection needs of women, children and people with disabilities. Investment in climate adaptation and infrastructure in regions susceptible to climate-induced displacement can enhance the resilience of communities and reduce pressures[129] to migrate. For example, **transportation infrastructure** that builds connections to markets supports livelihoods and the movement of people and goods, while infrastructure for climate-smart agriculture can support food security and reduce migration pressures. Investment should also be made in **early warning systems** to allow communities to proactively and safely manage fast-onset weather events. Expanding participation in social protection and insurance schemes can further build resilience.[130]

For populations that have been displaced, provision of basic services and social protections, for example through **cash or food transfers**, can support resilience and peace, as these groups often face high levels of vulnerability and have lower levels of social capital. For communities that temporarily move through areas—migrants and pastoralists, among others—facilitating the adoption of agreed rules for **natural resource management**

among communities can reduce intercommunal conflict and enable safe migration.[132]

As displacement increasingly occurs to cities, it also provides opportunities for inclusion. Historically, urban areas have been designed for and by men. **Inclusive and participatory urban planning** that considers the needs of carers, women, girls and people with disabilities can accelerate economic and social inclusion.[133] Some specific areas include aspects related to health and hygiene, safety, access, climate resilience, among others.

5. Natural resource management and livelihoods

Natural resource management and governance can be a tool for sustainable development, building resilience, increasing social cohesion and driving peace. Policy makers can actively engage pastoral communities and increase their agency by involving them in developing and implementing policies and ensuring **representation** at relevant national and international fora.[134] Supporting existing **indigenous knowledge strategies** – for example, through social system support, early warning systems based on long-term observation of astral bodies and stewardship of animals and plants – can increase resilience and should be a key focus of policy makers.

Local acceptance, ownership and partnerships can be strengthened through natural resource management by promoting **flexible and communal systems of governance** for grazing and water sources as well as promoting bottom-up approaches and **linking customary pastoralist institutions and practices with formal government actors.** Natural resource sharing agreements between different actors (i.e. (agro)pastoralists and farmers, among (agro)pastoralists and between refugees, internally displaced persons and host communities) should also be facilitated via both **formal and informal mechanisms** to foster social cohesion and manage conflicts.[135]

[126]Devlen, L. et al. (2022). [127]Whitaker, E. and A. Steinkraus (2023). [128]Destrijcker, L. et al. (2023a). [129]Whitaker, E. (2023). [130]Ibid. [131]Ibid. [132]Nagarajan, C. et al. (2022). [133]Terraza, H. et al. (2020). [134]Destrijcker, L. et al. (2023b). [135]Destrijcker, L. et al. (2023b).

6. Water cooperation

Of central importance in preventing water-related conflict is encouraging **transboundary water sharing agreements** and supporting transboundary institutions in developing **inclusive and flexible governance mechanisms.**[136] Beyond reaching agreements for today's water resources, water governance needs to take a forward-looking approach that anticipates future changes in water access and how these changes could affect or create marginalised groups to pre-empt conflict[137]. This can be supported through **locally-informed integrated analysis** on how climate risks compound existing, and create new, challenges to human security.[138]

It is important to take a holistic approach that links water security to climate adaptation of food systems and livelihoods.[139] Technical solutions such as **irrigation infrastructure and water capture and harvesting systems** play a role, but on a broader level, water policies and global food system policies should be linked to support synergies.[140]

The voices of those most affected should be amplified to ensure **inclusive involvement in water governance processes.**[141] Barriers to women's participation should be removed, with actions such as offering training opportunities, scheduling meetings with childcare, setting targets for the participation of women, collecting gender-disaggregated data, and providing gender training to dialogue facilitators to create a more inclusive environment and awareness among male colleagues.[142]

7. Governance and climate policy as peacebuilding

Policy makers and practitioners should integrate approaches **by linking environmental and climate action with peacebuilding efforts.** In areas of weak governance, working directly with communities and using a bottom up approach become even more critical, especially in peacebuilding. Given the contribution of climate change to conflict and insecurity, peacebuilding practitioners should integrate ways of building resilience to climate risks into their work to ensure a sustainable peace.[143] Addressing climate security risks also has the potential to bring communities together

over **shared environmental and resource challenges** and offer an incentive for parties in conflict to engage in peaceful conflict resolution.[144]

To support these efforts, practitioners need **climate security foresight and analysis,** as well as contextual information on local conflict dynamics, for example through stakeholder mapping and conflict analysis.[145] The environmental peacebuilding community of practice should be strengthened and the research base in the field expanded with the exchange of information, tools and analysis.[146]

8. Social cohesion and identity

In addition to physical threats, **existential threats to identity and culture** belong in a common understanding of human security as they increase **societal tensions** and challenge peaceful coexistence. Efforts to build social cohesion and preserve areas and practices that are culturally significance are an important opportunity to build resilience and peace in a changing climate.

When designing projects and policy interventions, it is crucial to consider how effects differ across segments of the population. **Unequal access to or distribution of benefits** can create tensions, undermining the success of peacebuilding efforts.[147] Such unequal access can occur, for example, when multiple actors are providing support services in the same context, leading to **different requirements or quantities of cash transfers, food aid, or other benefits.**[148] Coordination among implementing organisations to standardise benefits is therefore an important step.[149]

Within an individual intervention, consideration of any variations in the access of communities is also needed. Local stakeholder involvement throughout project development and implementation can help build support and identify

[136]Binder, L. et al. (2022b). [137]Whitaker, E. et al. (2023). [138]Mosello, B. and A. Steinkraus (2023). [139]Whitaker, E. et al. (2023). [140]Whitaker, E. et al. (2023). Mosello, B. and A. Steinkraus (2023). [14]Mosello, B. and A. Steinkraus (2023). [142]Sarkissian, H. (2021). [143]Weathering Risk (2023). [144] Ibid. [145]Destrijcker, L. et al. (2023a). [146]Kurnoth, H. E. and J. Vivekananda (2021).[147]Destrijcker, L. et al. (2023a). [148]Ibid. [149]Ibid.

potential issues in advance.[150] Engagement of local communities leads to **better tailored and more effective outcomes.[151]** This especially includes the **involvement of marginalised groups.** Specifically reaching out to and meaningfully including women, youth, diverse livelihood groups, migrants, and those who often lack access to decision making fora is an important entry point to build social cohesion and ensure interventions are context-sensitive.[152]

9. Investing in preventative and anticipatory action

As these nine trends continue to affect a growing number of countries around the world, UN Secretary-General António Guterres has explicitly placed climate change as a central aspect of the UN's conflict prevention agenda, and rightly so. Adopting conflict-sensitive prevention approaches while considering the role of climate change in the risk landscape will help ensure action.

Specifically, this would entail: Analysing indirect impacts of climate change; focusing on governance, not just scarcity; building up foresight capacities; assessing for maladaptation and inequality; and adopting cross-border responses.

Anticipatory action is another growing area of climate and disaster risk management that emphasizes the use of climate services and risk analyses to predict where crises might strike and enable action to prevent or mitigate impacts before disasters occur.

Whilst there is much value in the approach, most anticipatory action programming is happening in non-conflict situations. The reason for this is because for anticipatory action to work and to be effective to protect people in conflict settings, there needs to be a robust understanding of the impacts of compounding risks and the complex dynamics that armed conflict generates which could jeopardize the design and implementation of anticipatory action.

It is essential to understand how conflict sensitivity can be applied to anticipatory action, in order to follow the principles of do no harm and ensure that anticipatory action does not contribute to any existing tensions in a given context.

Climate change is a risk to peace. Evidence-based responses will help weather the storm. This synthesis report outlines the ways climate change is shaping peace and security as well as evidence and insights from different regions around the world. While the outlook can appear bleak, that makes it all the most vital to develop analysis, trainings and tools to facilitate risk-informed planning and identify opportunities to strengthen peace and resilience.

In its second phase, Weathering Risk will continue to build this evidence base and expand to newer and lesser analysed geographies, help bridge the science-policy gap, build more capacity for action and improve operational responses.

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[150]Ibid. [151]Sikorsky, E. and B. Hugh (2023). [152]Nagarajan, C. et al. (2022).

Annex I: List of Weathering Risk publications by region and theme

Africa

Africa Climate Security Risk Assessment (forthcoming)

Africa Climate Security Risk Assessment: Executive Summary

Climate, Peace and Security Assessment: Mali (also available in French)

Climate Security Study: Kenya

Climate, Peace and Security Study: Uganda, West Nile sub-region

Climate, Peace and Security Study: Somalia Region, Ethiopia

Climate Risk Profile: Somalia

Climate Risk Profile: Eastern Africa

Climate Risk Profile: Southern Africa

Entry points and priorities for MINUSMA to address environmental and climate security in Mali

Key climate security actors and frameworks in Eastern Africa

Building climate and conflict resilient livelihoods and food systems: Insights from East Africa

Integrating Climate Security into Policy: Roadmap for Somalia

Pacific and Asia

Pacific Climate Security Assessment Guide

Climate Security Risk Assessment: Kiribati (forthcoming)

Climate Security Risk Assessment: Republic of the Marshall Islands

Climate Security Risk Assessment: Tuvalu (forthcoming)

Latin America and the Caribbean

Roots for Peace: Uncovering climate security challenges in Haiti and what to do about them (also available in French)

Middle East

Climate, Peace and Security Assessment: Yemen (forthcoming)

Integrating Climate Security into Policy: Roadmap for Jordan

Integrating Climate Security into Policy: Roadmap for Yemen

Integrating Climate Security into Policy: Roadmap for Iraq

Climate Risk Profile: Iraq

Climate Risk Profile: Jordan

Cross-regional and thematic reports and papers

10 Insights on Climate Impacts & Peace

Why tackling climate change is vital to peace

Addressing Climate-related Security Risks: Towards a Programme for Action

Synthesis: Climate Security in 3D

Seven questions for the G7 Superforecasting climate-fragility risks for the coming decade

Context matters: A review of the evidence of how social, economic and other variables influence the relationship between climate and security

Next steps towards an inclusive Climate, Peace and Security agenda

Operationalising the Climate, Relief, Recovery and Peace Declaration

Methodology

The Weathering Risk methodology

Weathering Risk Climate Security Risk Assessment Methodology – Guide and Tools (updated)

Climate Security Scenarios

Scenario-based analysis: Levant

Climate Security Scenarios in the Balkans

Quantitative work on climate impact modelling, regression analysis and machine learning (peer-reviewed publications)

A review of climate security risk assessment tools

Inequality and Security in the Aftermath of Internal Population Displacement Shocks: Evidence from Nigeria

Global Food Prices, Local Weather and Migration in Sub-Saharan Africa

Global Trends Between Conflict- and Disaster-induced Displacement and International Migration (forthcoming)

A Meta-Analysis of Climate Migration Literature

Using a Causal Forest to Investigate Treatment Effect Heterogeneity of SPEInShocks on Conflict (forthcoming)

Using Random Forest to Analyze the Effect of Climate Impacts on Conflict (forthcoming)

Multi-model Risk Assessment of Global Food Price Spikes under Future Climate Change (forthcoming)

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