ENABLING AN ENVIRONMENT OF PEACE

Environment of Peace
Part 4

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CONTENTS

About the Environment of Peace research report

This research report is a product of the Environment of Peace initiative launched by SIPRI in May 2020. It sets out the evidence base that provided the foundation for *Environment of Peace: Security in a New Era of Risk*, a policy report published in May 2022. The report is published in four parts—Elements of a Planetary Emergency (part 1); Security Risks of Environmental Crises (part 2); Navigating a Just and Peaceful Transition (part 3); and Enabling an Environment of Peace (part 4)—as outlined below.

Elements of a Planetary Emergency

Part 1 lays out the conceptual and evidential landscape for Environment of Peace, bringing together data on a wide range of indicators, showing that both security and environmental stresses are increasing.

Security Risks of Environmental Crises

Part 2 shows how combinations of environmental and security phenomena are generating complex risks and discusses options for responding to them.

Navigating a Just and Peaceful Transition

Part 3 focuses on needed transitions towards sustainability and climate resilience, with special attention given to areas such as land use, energy and climate response.

Enabling an Environment of Peace

This part, part 4, examines the legal and institutional landscape within which the twin crises—and humanity's responses to them—play out. Lead authors Melvis Ndiloseh, CEO of the Foundation for Peace and Solidarity and Senior Lecturer at the International Relations Institute of Cameroon, and Hafsa Maalim, SIPRI Associate Senior Researcher, identify policy options for change. Part 4 surveys the various international, regional and national-level agreements that link environmental safeguards to security concerns and identifies critical gaps.

Other related materials

Separate annexes assemble a number of in-depth case studies and other input papers that were commissioned to inform the research and analysis of the report. An annex corresponding to each part can be downloaded from the SIPRI website. A comprehensive overview of the report's four parts and the Environment of Peace initiative is also available at the SIPRI website.

4. ENABLING AN ENVIRONMENT OF PEACE

4.1. Introduction

Humanity is currently confronted with two wicked problems of unprecedented scale and magnitude: environmental degradation and global insecurity. Despite both risks being multifaceted and interconnected, international policy engagements have, for the better part of the 21st century, consistently under-prioritized the environmental dimension of peace and security. While the traditional security community argued that linking environment to security would make the field too broad, undermining conceptual clarity, environmentalists feared that doing so would situate collective environmental issues within the divisive framework of nationalism and securitization. The Covid-19 pandemic has compounded the plethora of environmental and security challenges, further necessitating a comprehensive, multifaceted response.

Environmental risks have often featured marginally at best in broader policy reflections on security challenges, with challenges related to violent extremism, nuclear disarmament and civil wars dominating the discourse. Though the ramifications of climate change are now garnering increasing attention within the security sphere, they represent only part of the Anthropocene crisis and risk overshadowing the systemic perils posed by planetary environmental degradation. Against this backdrop, the policy implications of prioritizing the global environment–peace nexus remain relatively underemphasized.

The preceding parts of the Environment of Peace research report amply demonstrate that environmental degradation is not merely a facet of the security challenges confronting regions of the world—it is a crucible of current, emerging and projected security challenges. If not the sole trigger, it is at least the cross-cutting driver and catalyst of multiple complex security risks bedevilling the globe. Armed conflicts, violent extremism, food insecurity and other forms of human insecurity frequently reflect—whether directly or indirectly—the consequences of various forms of environmental degradation. Security challenges also inflict damage on the environment, thereby generating or exacerbating conflict risks, violence and instability. Principle 25 of the

1992 Rio Declaration affirms that 'Peace, development and environmental protection are interdependent and indivisible'.[1] Where one falters, the others are weakened.[2]

It is clearer now more than ever that the environment is intertwined with human survival. Conflict can occur when this interconnection is neglected, which is why efforts to address environmental pressures must be conflict-sensitive and vice versa. For instance, efforts to mitigate climate change by transitioning to green energy must factor in potential geopolitical tension, socio-economic and political instability for oil-producing countries, and friction with Indigenous communities. Similarly, steps aimed at preserving global peace—such as nuclear disarmament—hold significant potential for preserving the global ecosystem. Simply put, the time has come for the environment to be firmly ensconced at the heart of global security decision making.

This imperative is not adequately reflected in the content or strategic focus of existing policy frameworks. Fifty years ago the 1972 United Nations Conference on the Human Environment in Stockholm marked a turning point in global recognition of the risks posed by environmental degradation. Yet many of the environmental pressures highlighted at Stockholm have persisted through the subsequent decades, even as new problems have emerged. Despite notable successes in some areas, such as environmental peacebuilding and addressing acid rain and ozone depletion, the international community has failed to generate the necessary momentum to tackle other issues, with high-level declarations unfulfilled by concrete action. Moreover, while recognition that the right to a healthy environment is a fundamental human right[3] remains an enduring legacy of the recent UN environmental conference, it is dwarfed by the unfolding planetary emergency. There is consequently an urgent need to map the relevant policy blind-spots and response oversights in order to mobilize a global course correction. As a starting point, multidisciplinary research must be deepened in order to widen current understanding of the interlinkages between the various environmental challenges to peace and security. This includes establishing a clear conceptual framework of a 'peaceful environment' and formulating a new—and long overdue—peace and security theory of change.

This policy part of the Environment of Peace research report builds on the premise that environmental considerations are central to security and crucial for the peaceful existence and collective survival of global societies. The environment must, therefore, be prioritized in efforts to nurture peace and sustainability for current and future generations. Drawing on the up-to-date research evidence presented in the first three parts of this report, part 4 seeks to inform policymaking and actions aimed at preventing and managing human security risks, avoiding transition pitfalls, and harnessing transformative opportunities.

Given the vast nature of the themes addressed in this study (environment, peace and security), the policy pathways proposed focus on areas of confluence. More specifically, this part of the report will: (*a*) highlight

emerging interconnected risks and existing policies; (*b*) rethink the current peace and security theory of change; (*c*) map out existing policy and implementation gaps; (*d*) consider the implications for policy approaches to enabling a peaceful environment; and (*e*) explore effective strategies for mobilizing collective will and action by building synergies across disciplines. The overall goal is to propose an enabling framework for action when it comes to creating, managing and sustaining an environment of peace.

4.2. Key findings and emerging trends from the Environment of Peace report

Understanding the current and emerging issues affecting the environment and peace is a prerequisite for policy development. The first three parts of this report highlight 10 key gaps and challenges worthy of immediate policy consideration:

1 **Rapidly growing environmental emergencies**
Global data shows a sharp deterioration in the human environment over the past 50 years, constituting the biggest threat to human security. Despite the warnings given at the foundational UN Conference on the Human Environment in 1972, the human environment has, according to key metrics, continued to deteriorate—ecosystem extent and condition indicators show a 47 per cent decline, with 1 million species face extinction in the coming decades.[4] The unbridled extraction of non-renewable natural resources has further deepened environmental deterioration.[5] Humans have altered 75 per cent of the world's land surface and impacted 97.7 per cent of the oceans.[6] Estimates suggest that 33 per cent of the Earth's soil is already degraded, and more than 90 per cent of the planet's land area could be degraded by 2050.[7] Moreover, humans keep generating ever more greenhouse gas (GHG) emissions. Between 1980 and 2020 each decade saw higher concentrations of GHGs and an unprecedented rise in global mean surface temperatures, with current estimates suggesting a 1.1 °C increase compared to pre-industrial levels[8]—the highest in 100 000 years,[9] prompting the UN Secretary-General to declare a 'code-red' for humanity.[10] An estimated 12 million hectares of land, representing a productivity potential of 20 million tonnes of grain,[11] is lost to desertification annually. Losses from natural catastrophes worldwide totalled $280 billion in 2021, compared to $210 billion in 2020 and $166 billion in 2019.[12] Overall, no component of the environment stands free from significant and potentially irreversible impairment.

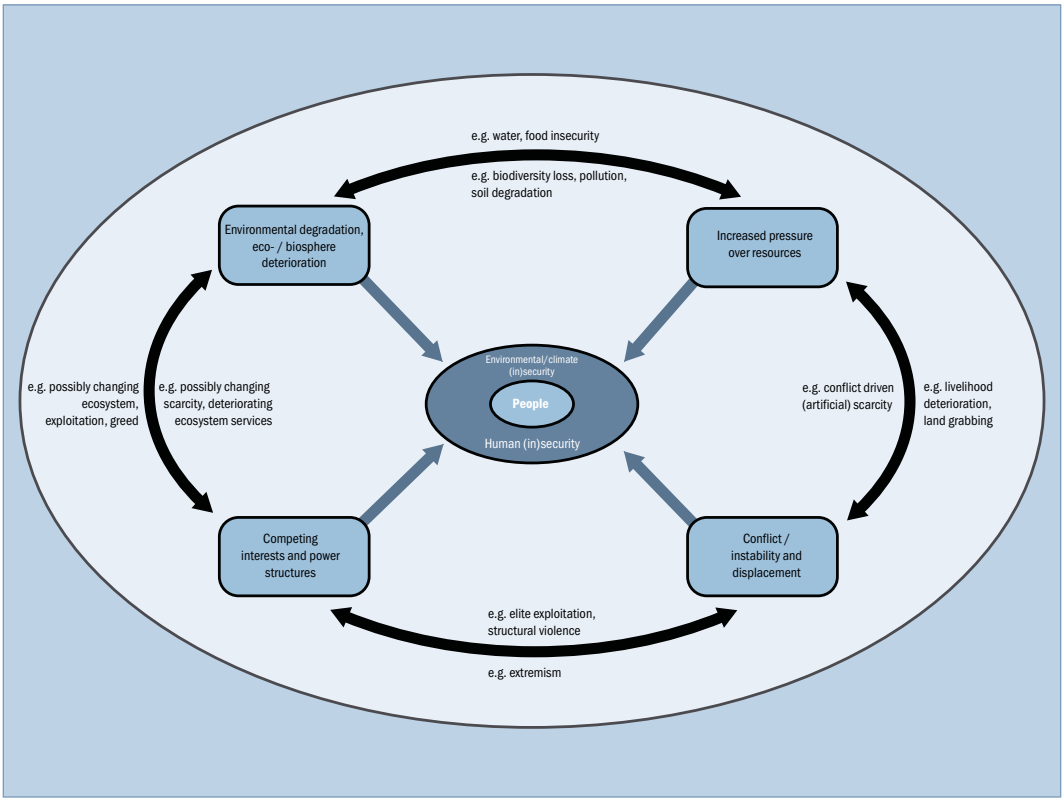

Figure 4.1. Risk dynamics that call for adaptive, anticipatory and reflexive governance

Source: Environment of Peace.

2 Dark security horizon

The global security landscape is at its worst since the end of the cold war, most recently evidenced by Russia's invasion of Ukraine in February 2022. The decline in violent conflict outbreaks from 50 incidents in 1990 to 30 in 2010 has proven short-lived[13]—since then the number of armed conflicts has steadily increased, reaching 56 in 2020.[14] Forced displacements have more than doubled from 42 million in 1990 to 89.3 million people in 2021.[15] In some cases it has been argued that migrants have been forcefully used as tools of hybrid warfare.[16] The number of armed groups has multiplied in conflict hotspots across the globe, rising to as many as 1000 in Syria and 2000 in Libya.[17] Interstate wars, though less frequent, have given way to external engagements in internal wars—as is the case in up to a third of current armed conflicts (e.g. Iraq, Libya, Yemen, Syria).[18] World military spending has risen steadily since 1999 (interrupted in 2008–2009 during the Global Financial Crisis) and is now at its highest level since the end of the cold war.[19] The growing sophistication of armed weaponry, including nuclear weapons, add additional

layers of complexity to a rapidly declining global security landscape.[20] Meanwhile, terrorism and violent extremism have surged exponentially in terms of frequency, brutality and spatial distribution. Between 1970 and 2020 over 200 000 incidents were registered,[21] with an estimated cost of $171.17 billion over the past decade in Africa alone.[22] An additional 40 million people were affected by acute food insecurity between 2020 and 2021 (rising to 193 million people),[23] reversing trends in hunger reduction seen over the previous decade.[24] All this is unfolding in the context of a global Covid-19 pandemic, which has amplified pre-existing democratic governance deficits, claimed nearly 6.5 million lives,[25] reversed three decades of progress in poverty reduction and driven 120 million people into extreme poverty.[26]

3 **Inseparably interconnected risks**

Nature and human society are inseparably intertwined, as are environmental and security risks. The interconnection is complex, non-linear and systemic.[27] Here, three levels of interconnection are particularly noteworthy: *(a)* environmental drivers of conflict and instability; *(b)* environmental consequences of armed conflict; and *(c)* conflictual solutions to environmental degradation (transition to green energy). The interlinkages are also self-reinforcing, with environmental stressors exacerbating conflict-triggering factors, and conflicts undermining the social cohesion and resilience needed to adapt to environmental deterioration and sometimes the environment itself. These interactions are, however, often unpredictable and replete with unintended consequences. As such, securing peace entails understanding and addressing these linkages while managing the attendant negative fallouts (see figure 4.1).

4 **Socio-ecological risks**

Environmental pressures affect all social, political and economic systems, in turn affecting security concerns through livelihood deterioration, forced migration, and economic and political exploitation. There is therefore an urgent need to direct policy attention towards this interconnectedness in all efforts aimed at addressing root causes; implementing comprehensive responses; tailoring policy responses that are distinct to the experiences of both men and women; initiating meaningful inclusion of Indigenous groups; emphasizing adaptation and resilience;

and facilitating conditions for migrants. Additional triggers include weak governance, poor natural resource management, and the political and economic exclusion of minority communities, such as people with disabilities. Viable solutions must address these root causes, not merely the symptoms of the problem.

5 **Risks for women and youth**

Environmental change has significant generational and gendered security implications.[28] Women and youth are disproportionately affected by extreme weather effects, socio-economic inequalities and systemic violence. For instance, during droughts women commonly face higher risks and greater burdens securing livelihoods, water, food and fuel. Some 80 per cent of people displaced by extreme weathers are women and girls,[29] who also face greater risks of gender-based violence, poverty and inequality. As environmental change intensifies, young people also face higher risks of violence, displacement and poverty. Despite this, women and youth remain underrepresented in formal policy-creation bodies, and as such policy responses often fail to address the problems that they in particular suffer from. A growing youth movement in the past five years has, however, begun to put pressure on policymakers. In addition to being sensitive to the intersectional dimensions of environmental change and insecurity, policies must promote inclusive leadership if the relevant issues are to be effectively addressed.

6 **Climate tipping points**

Scientists have warned of small or slow-onset changes in the climate system that can trigger larger, more critical changes. These can happen abruptly, be irreversible and lead to cascading effects. While the mechanisms, thresholds and effects involved are difficult to fully understand, scientists have nonetheless warned that due to the climate system's deep interconnectedness, tipping points are being reached.[30] Exceeding such thresholds could lead to large and possibly irreversible changes in the natural or climate system.[31] The starkest warning is that once we cross critical thresholds the negative consequences will be far-reaching and irreversible.[32]

7 **Climate adaptation**

Climate change and environmental degradation require resilience and adaptation, both immediately and in the medium to long term.[33] Adaptation takes many forms,

from individual and community-level responses to larger government-led responses. Governance, education, infrastructure, food and energy systems (among other sectors) must adapt to the changing climate and environments they operate in if they are to minimize human security and conflict risks. It is imperative that responses deconstruct systems of marginalization while at the same time building up resilience and adaptive capacity.

8 **Mitigation and green transition risks**

Mitigation strategies carry a variety of backdraft potentials that need to be actively addressed. Some of the key issues by strategy include: *(a)* biofuels—land and water use; *(b)* geoengineering—unknown, long-lasting and potentially irreversible changes to the atmosphere, altering solar radiation, international governance crises; *(c)* hydro—flooding, biodiversity losses (especially to riparian life), environmental flow changes; *(d)* solar, wind and batteries—destructive mining and processing practices, recycling and waste concerns; and *(e)* nuclear—uranium mining, proliferation concerns, radioactive waste storage, potential meltdowns. Moreover, the shutdown of fossil fuel industries around the world will have profound effects in terms of geopolitical power,[34] government revenue,[35] employment opportunities and incomes, and the risks associated with abandoned and environmentally hazardous infrastructure,[36] which will be extremely costly to remediate.[37] Despite these concerns, mitigation is essential. Policymakers need to manage the largest and most rapid energy transition in human history in context-specific and conflict-sensitive ways.

9 **Ecosystem conservation and restoration**

Despite conservation and restoration being critical to the functioning of ecosystems, rapid industrialization and the proliferation of nature protection campaigns have intensified tensions with the Indigenous peoples who inhabit these lands. It is implicit in the principles of conservation that decoupling human civilization from the ecosphere is impossible. Thus, the knowledge and experience gained by Indigenous peoples over millennia offer important insights into the sustainable stewarding of habitats. It is essential that these practices are not simply regarded as a new market mechanism, but are seen as being intrinsic to sustaining life. Modern agricultural systems also need to work more harmoniously with existing ecosystems, rather than harm them through monocultures, intense land and

water use, and harmful chemicals. In addition, it should be acknowledged that some conservation and biodiversity safeguarding measures have led to conflict.[38]

10 **Geopolitics and declining multilateralism**
International cooperation has faced a number of significant challenges in recent years, particularly in the form of increasingly nationalist leaders sceptical of multilateralism and international institutions. Bridging of the insecurity gaps created by the degrading environment has been significantly stalled by geopolitical interests and weakened international cooperation.

The above findings suggest that humanity has entered a new security era in which risks are not only interconnected, but global and rapidly evolving. These risks do not fit the mould of current security paradigms, and as such the need to rethink security has never been more urgent.

4.3. Rethinking the peace and security theory of change: Factoring in the environment

Parts 1–3 of this report have established that rather than being linear nor static, the security landscape is in fact complex and evolving. The unfolding of the new security era—which has revealed the many ways in which the natural environment is inseparably intertwined with human survival, and how environmental degradation affects collective peace—has spotlighted the urgency of realigning the current concept of security with the emerging risks we face. This must be complemented by a shared conceptual understanding of an environment of peace, including its approach and guiding principles.

4.3.1. Reframing security

The emergence of the Anthropocene represents a fundamental transformation of humanity's relations with the rest of nature. Responding to this transformation requires a correspondingly fundamental reconceptualization of how humanity can realize peace, security and development in this new era.

Humans have always affected—and at times significantly altered—the environment. As homo sapiens spread from Africa to Asia, Europe and the Americas millennia ago, hunting and habitat change pushed many large animal species to extinction.[39] Thousands of years later, as coal fuelled the Industrial Revolution, 19th century naturalists discovered that the wings of moths were becoming darker in the regions surrounding Britain's factory cities—evolutionary camouflage adapted to soot-covered trees.[40] The Anthropocene constitutes a radical shift, with strains on the environment

having escalated sharply in recent decades. Economic growth, resource use, population, urbanization, globalization, transportation and communication have all increased dramatically since the mid-20th century. This 'Great Acceleration'—the momentous expansion of human activity—is propelling unprecedented environmental change worldwide.[41] Beyond impacting or even extinguishing particular species, habitats or ecologies, human pressures are profoundly disrupting the planet's elemental cycles and systems, from the global oceans to the global climate.[42]

The planetary scale of the challenges thrown up by the Anthropocene highlight the extensive, inextricable interconnections between humanity and the environment. While humans are, of course, part of nature, science and policy has often treated the two as separate spheres. Historically, economic and development policy barely, if ever, considered environmental issues. Mainstream environmental planning and natural resource management typically assumed society to be independent from the environment and addressed nature as subject to direct and predictable human control.[43] Yet humanity and nature can more accurately be understood as deeply intertwined elements in complex social-ecological systems. Attempting to understand either in isolation is illusory.

Social-ecological systems (SES) consist of a bio-geo-physical unit (e.g. an ecosystem), together with its associated social actors and institutions (e.g. management agencies and resource users).[44] Different SES in turn overlap at multiple scales, from the local to the global. A fishery, for example, may be fished by many communities and managed by multiple countries, even as its specific habitats and ecologies are embedded within the larger ocean ecosystem. SES constitute 'complex adaptive systems', meaning they display several key characteristics.[45] SES are open systems, intersecting, communicating and exchanging with other systems, and are made up of diverse components with a variety of roles and functions. Relations between different components, and between different systems, are dynamic and context determined. Connections between components may follow multiple pathways, while different components may occupy different roles or identities in different conditions. A given forest, for instance, can provide, among other things, bioenergy, carbon storage, flood regulation, biodiversity conservation and recreation.[46] As such, the system represents more than the sum of its parts, possessing properties that cannot be disaggregated into the individual components.

Crucially, interactions within and between SES are non-linear. System inputs or drivers can produce disproportionate outputs. Outputs, meanwhile, can become inputs as feedback loops amplify or dampen system effects. As climate change progressively reduces reflective snow and ice cover, for example, land and ocean surfaces absorb more solar heat, melting yet more ice and snow and so magnifying warming trends.[47] The multiplicity and dynamism of system interconnections enable SES, as complex adaptive systems, to adjust continuously to the interplay of changing contexts,

conditions and disruptions. At the same time, the non-linearity and context-dependence of interactions render system behaviour unpredictable, obliging policymaking in SES to navigate uncertainty and even surprise.[48]

History has long recorded that environmental stresses can undermine societal welfare and social cohesion, thereby sowing the seeds of instability. Countless contemporary chronicles, for instance, point to the part played by recurrent famines and crop failures—driven by extreme weather and natural disasters—in stirring the pervasive unrest that plagued Europe and Asia in the 17th century.[49] In the Anthropocene, mounting pressures on increasingly integrated SES are spawning new planetary risks. Ongoing environmental degradation may push some systems past irreversible tipping points.[50] With growing socio-environmental interconnectivity, disruptions in one sphere can cascade across geographies, sectors and scales, from the local level to the global.[51] Myriad environmental strains may contribute to compounding risks that could potentially overwhelm societal coping capacities. For instance, in 2007–2008 recurrent droughts decimated harvests in several major agricultural nations, fuelling supply shocks that rippled through global grain markets, compromising food security and catalysing civil strife in dozens of vulnerable importing countries.[52] By the same token, violent conflict and instability can degrade societal and state capabilities when it comes to addressing environmental challenges, perpetuating vicious cycles of fragility and insecurity.[53]

Peace, human security and development are societal objectives. Realizing these objectives requires recognizing their essential interlinkages. Traditional concepts of security have typically centred on external—usually military—threats to a nation's physical territory, population or government stemming from other state or non-state actors.[54] Such frameworks are no longer adequate. As the Great Acceleration has gathered speed, so a rising number of policy analysts and practitioners, surveying the ecological damage and socio-economic strain incurred by humanity's escalating pressures on the rest of the natural world, have come to regard protecting the global environment and preserving global security as closely interconnected. The UN roadmap for implementing the Millennium Declaration, for instance, which would give rise to the Millennium Development Goals, explicitly conceived the international objectives of peace, security, disarmament, development and environmental protection as being intertwined.[55] In practice, however, efforts to integrate peace, human security and development have often been hampered by linear logics and siloed implementation. Institutions remain stove-piped in their missions and mandates.[56] Formulations of societal risks and responses still frequently focus on conflicts envisaged as due to resource scarcities or single drivers such as climate change, rather than shaped by systemic social-ecological interconnections.[57]

The Anthropocene has plunged humanity into an unprecedented policy environment characterized by persistent uncertainties about the workings of complex systems; high decision stakes attached to the costs and benefits of

possible actions; and important debates concerning the means, objectives and values that should shape public choices. Tackling these challenges requires new strategies and structures for managing complex risks.[58] Sustaining peace, security and development necessitates safeguarding the environmental integrity and resilience underpinning humanity's material and biological welfare. Thus, ensuring an environment of peace means integrating systemic appreciations of social-ecological complexity and interdependence into global understandings, institutions and policy interventions.

The notion and definition of 'security' is changing. As such, the nexus between these multifaceted risks to the environment and complex risks to peace needs to be concretized and sustained. The Environment of Peace report is framed within this new security space and seeks to illuminate how various forms of environmental change—as well as responses to environmental degradation (including policies to address root causes)—can catalyse or contribute to multiple forms of insecurity, including: state and non-state conflict; local, intra-state and interstate organized violence; entrenched grievances and elite exploitation; and political/social instability and increased inequality. By the same token, the report seeks to show how conflicts, and its consequences, harm the environment.

Envisioning a new environment of peace allows for a shared understanding of how to forge and sustain peace in the Anthropocene.

4.3.2. Envisioning an environment of peace

Envisioning an environment of peace has implications for local, national, regional and international peace efforts. Given the multidimensionality of the environment–security nexus, a shared environment of peace vision, adaptable to varying contexts, is preferred over a single, univocal definition. A shared environment of peace vision allows for more comprehensive policymaking in meeting the complexity and scale of current and emerging threats to peace.

An environment of peace is visualized as being where: (*a*) violence and life-threatening risks created or exacerbated by environmental degradation (including climate change), or responses to it, are minimized or eliminated; (*b*) environmental degradation and climate damage exacerbated by armed violence are minimized or eliminated; (*c*) the needs of the natural world (i.e. the planetary habitat or biosphere) and human society (i.e. the world population) are considered equally and in an integrated manner in policy decision-making and implementation processes; (*d*) human progress/development is underpinned by concepts of environmental sustainability, justice and equality; (*e*) policies, norms, institutions and practices allow for the effective prevention and management of large-scale risks to humanity; (*f*) the normative, institutional and operational framework imbue an environmentally sensitive culture that fosters human security and social cohesion; (*g*) policy responses to environmental degradation and climate change are conflict-sensitive and inclusive; and (*h*) policies and actions are formulated through both top-down and bottom-up approaches, keeping in

mind the reality that environmental and security risks affect society as a whole—to achieve this, people must be able to participate when and where decisions are taken about their lives (e.g. young people in the climate domain, and Indigenous peoples in the protection of their land).

4.3.3. Determinants of an environment of peace mindset

Conceptually, an environment of peace mindset requires: (*a*) continuously mapping and addressing the environmental risks that trigger or sustain conflicts and insecurity; (*b*) limiting environmental damage during conflicts; (*c*) anchoring peace and resilience as intrinsic elements of a healthy environment; (*d*) ensuring a conflict-sensitive transition to green energy or technology; and (*e*) addressing large-scale environmental degradation together with its humanitarian consequences.

Thinking in terms of an environment of peace further recognizes that environmental factors are neither the only drivers of insecurity nor exist in isolation from security aspects. Instead, they are part of a complex web of social, economic, political and environmental risk drivers.

The policy responses proposed in this report are grounded in seven core principles largely drawn from the Rio Declaration of 1992, which can guide the norm setting, institutional arrangements and entry points for creating, managing and sustaining an environment of peace:

1. **Interdependency of risks and solutions**
   'The environment' and 'peace' are individually complex, inseparably intertwined and self-reinforcing. Sustained damage to the environment increases the risk of human insecurity, and vice versa. Conversely, efforts to improve human security ultimately promotes a healthy environment, and vice versa.
2. **Anticipation of the unintended unforeseeable**
   In the spirit of Principle 15 of the Rio Declaration, the interconnectedness of environmental (and climate) change with peace and security demands that reasonable efforts be made to minimize potential (foreseeable and unforeseeable) risks, in particular when the magnitude of the security risks is unknown. An anticipatory approach—actively monitoring for unintended consequences in order to minimize risk while carrying out and continuously adjusting action—allows emerging risks to be countered.
3. **Responsibility to prevent (risks) and preserve an environment of peace**
   Governments, societies and individuals should be held responsible for their contribution to environmental stressors and strive to minimize their planetary footprint through

environmentally sensitive actions and approaches. The environment should, in effect, be treated as a common heritage that must be nurtured for the benefit of current and future generations. Such an approach involves leaning on the UN Responsibility to Protect (R2P)[59] principle adopted at the 2005 World Summit to prevent crimes against humanity,[60] and integrating the security the environmental dimensions of the planetary emergency.

4 **Accountability and polluter-pays principle**
An environment of peace foresees that those undermining peace and security by causing climate or environmental damage should be held accountable when it comes to supporting those coping with its adverse effects. Furthermore, an environment of peace adds a security angle to the accountability enshrined in Rio Principle 13 regarding 'liability and compensation for adverse effects of environmental damage', as well as the 'common but differentiated responsibilities' of states in Rio Principle 7.

5 **Equity and justice**
Applying an environment of peace lens to the landmark UN Human Rights Council Resolution recognizing the right to a clean, healthy and sustainable environment expands this right to incorporate a functioning and peaceful environment for all, including adequate, equitable access to natural resources and ecosystem services. In the spirit of Principle 3 of the Rio Declaration on the right to development, the geographic, demographic and inter-generational dimensions of climate and environmental justice must be fully understood.

6 **Participation and inclusivity**
Shifting from free prior informed consent[61] to full stakeholder inclusion must involve putting those affected by peace and security risks in the driving seat when determining what an environment of peace signifies for their wellbeing. Building on Rio Principle 10, efforts aimed at ensuring peace and security through minimizing environmental damage and the effects of climate change need to include all segments of society at both the strategic and operational level. People and populations who are particularly affected should be integrated into decision making about their future, and their self-determination guaranteed.

7 **Adaptability**
While minimizing known risks in line with the precautionary principle, actors must also be aware that the interlinked (complex/wicked) environment and security nexus are

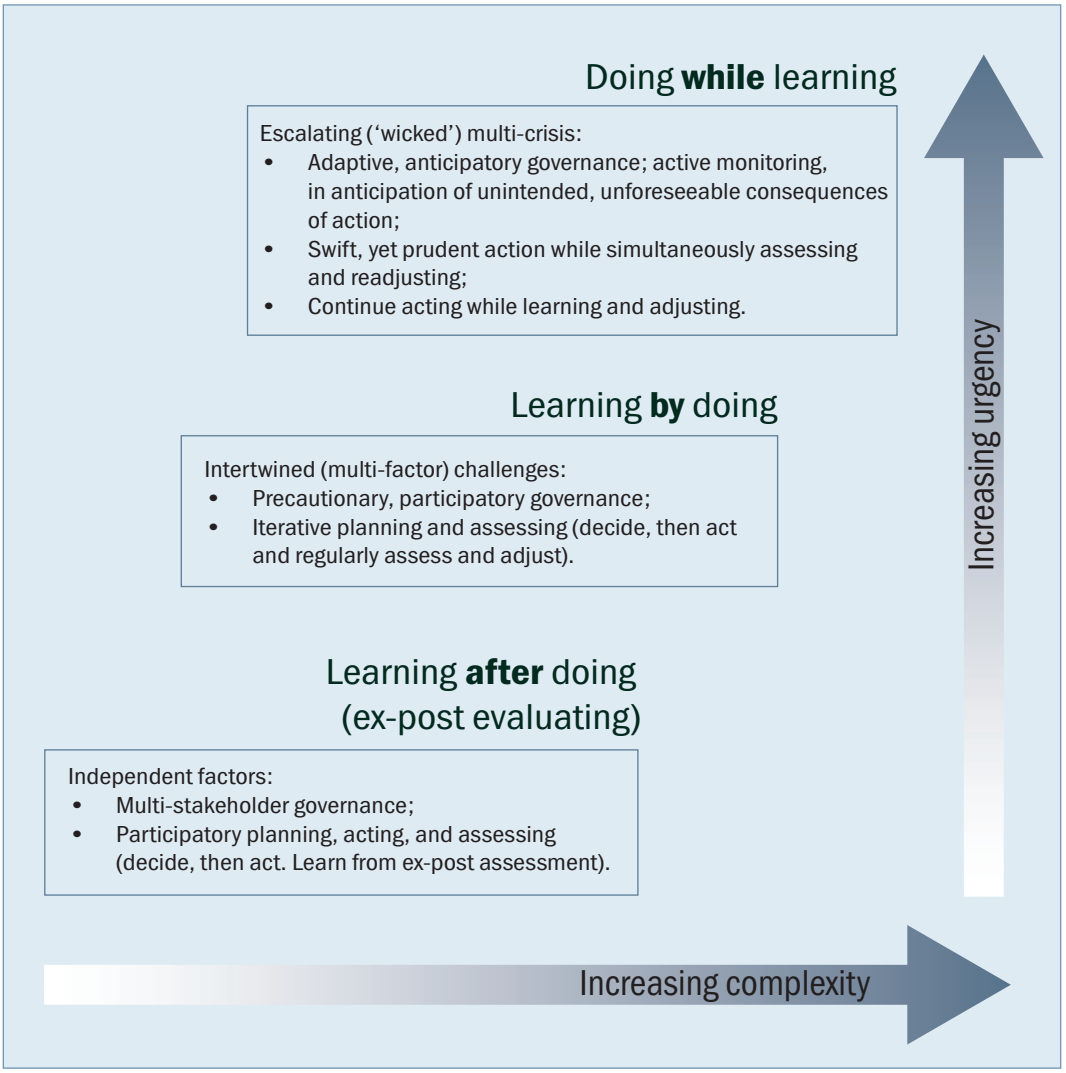

Figure 4.2. Reflective governance: From 'learning after doing' to 'doing while learning'

Source: Environment of Peace.

undergoing constant transformation. Given that any action undertaken may induce compound, unintended and often unforeseeable change, concomitant new approaches may need to be swiftly pursued. Rather than following the standard iterative process of programming or management cycles, which involves looking back at completed work ('learning by doing'), there is a need to continue acting while simultaneously learning from emerging success and failures ('doing while learning') (see figure 4.2).[62]

Drawing on the above, the next step is to reflect on the policy implications of viewing security from an environmental lens and vice versa. As a starting point, the ensuing section appraises the extent to which existing normative and institutional frameworks integrate environment of peace perspectives, approach and principles.[63]

4.4. Minding the policy and institutional gaps

Despite normative and institutional developments to foster peace or mitigate environmental damage, evidence from this report shows that both the security landscape and the environment have continued to deteriorate. This suggests that gaps remain in existing policies and response mechanisms, and that mapping these out is essential to diagnosing what needs to be improved.

4.4.1. Policy progress and gaps

While there is growing evidence of policy interaction between peace and environmental protection, it is fragmented across various peace, environment, development, and human rights and humanitarian law instruments. Currently, there is no internationally agreed framework that comprehensively deals with the linkages between the environment and peace. Within the international and regional peace and security agendas, however, the traditional interpretation of 'threats to peace and security'[64] has evolved from a focus on territorial integrity and political sovereignty (e.g. external military aggression) to a more human security-centred approach.

Since 1992 non-military sources of instability in the economic, social, humanitarian and ecological fields have been granted recognition by such international organizations as the UN, the European Union (EU), the Association of Southeast Asian Nations (ASEAN), the African Union (AU), the Organization for Security Co-operation in Europe (OSCE), and the North Atlantic Treaty Organization (NATO).

In 1994 the UN Development Programme (UNDP)'s annual Human Development Report was the first to introduce the human security concept,[65] which links security to people rather than territory, and to development rather than arms. The report stressed the need for policymakers to focus on future peace dividends derived from reduced military spending, and to restructure the system of global institutions to better address human security and sustainable development.[66] This was to be achieved by, among other means, approving a world social charter, adopting a sustainable human development paradigm, establishing a global human security fund and creating an Economic Security Council.

The UN's Agenda for Peace furthered this progress by acknowledging the risks to stability posed by ecological damage and calling for an expanded understanding of peace 'beyond military threats'. It further emphasized that 'a porous ozone shield could pose a greater threat to an exposed population than a hostile army. Drought and disease can decimate no less mercilessly than the weapons of war'.[67] Meanwhile, the Millennium Development Report noted that 'resource depletion, especially fresh water scarcities, as well as severe forms of environmental degradation, may increase social and political tensions in unpredictable but potentially dangerous ways'.[68] This theme is echoed in the Sustaining Peace Agenda, which proposes a 'new approach' to preventing the outbreak, escalation, continuation and reoccurrence of conflict, including

addressing environmental degradation, pollution and resource depletion as an ongoing global problem. It also builds on the case for a universal agreement on climate change. More recently, the 2021 'Our Common Agenda' report by the UN Secretary-General[69]—a blueprint aimed at accelerating the implementation of global frameworks including Agenda 2030 and AU Agenda 2063—encompasses the need to protect the planet. This is a clear indication of the continued primacy of the development–environment nexus in the UN's implementation agenda.

Similarly, progress has been made in addressing the interlinkages between gender, the environment and security. In 2018 the Committee on the Elimination of All Forms of Discrimination against Women introduced its first general recommendation—No. 37—stressing the need to achieve gender equality as a means of reinforcing communal and individual resilience to climate change.[70] The Women, Peace and Security (WPS) agenda—consisting of 10 different UN Security Council (UNSC) resolutions—includes UNSC Resolution 2242,[71] which recognizes the relevance of climate change. Climate National Action Plans have been useful in creating state roadmaps for implementation of the WPS agenda and finding concrete ways of incorporating gender-sensitive advice into climate approaches.[72] The Sustaining Peace Agenda also recognizes that women must be meaningfully included in peacebuilding and the prevention of conflict—of which climate change is increasingly found to be a key driver.[73] Moreover, the UN Secretary-General has placed environmental degradation and climate change at the core of his prevention agenda.[74] Although the Sustaining Peace Agenda does not explicitly link climate action to the inclusion of women in conflict prevention, it recognizes that sustaining peace is a shared responsibility between governments and all national stakeholders. Moving forward, recognition of the unique roles played by women in environmental peacebuilding requires continued strengthening through legal and normative frameworks.

Since the early 2000s the EU has broadened its concept of security to include key aspects of the environment, including climate change. The first mention of climate change in relation to security came in the 2003 European Security Strategy.[75] Five years later, in 2008, the EU published a report titled 'Climate Change and International Security' in which climate change was labelled a 'threat multiplier'.[76] Since then the topic has remained high on the political agenda, with various EU bodies—including the Commission—as well as EU member states through the Council of the EU, highlighting climate change and other environmental issues in relation to security.[77]

Two policies integral to EU action on security are the Common Foreign and Security Policy (CFSP) and the Common Security and Defence Policy (CSDP). On the CFSP side the 2016 European Global Strategy identified climate change and environmental degradation as potentially exacerbating factors of conflict,[78] while on the CSDP side the 2020 Climate Change and Defence Roadmap highlighted how the links between climate and defence

can be further incorporated into capability development, multilateralism and partnerships.[79]

More recently, in 2021, the Council of the EU published a 'Concept for an Integrated Approach on Climate Change and Security', which 'aims to increase the impact of the EU's external action on peace and security by ensuring that the climate and security nexus, including consideration for environmental degradation, is addressed in all relevant EU activities in this field, in full complementarity and coherence with the aforementioned policies'. Climate change and environmental degradation are recognized in the document as risks to international peace and security, including being potential conflict drivers. The concept picks out three areas that can be enhanced to better address climate and environmental security risks: (*a*) knowledge gathering and sharing; (*b*) climate change conflict prevention and security-related trainings; and (*c*) regular monitoring on relevant action and initiatives.[80]

Furthermore, multiple AU policy frameworks speak to the linkages between environment, peace and security. The AU Master Road Map of Practical Steps to Silencing the Guns in Africa, for example, recognizes the importance of addressing environmental challenges as part of efforts to end war in Africa. The Roadmap's 18th goal, reserved for 'environmental aspects', addresses challenges such as 'Environmental degradation, water and sanitation (loss of arable land, desertification, pollution in various forms, coastal erosion, loss of vegetation, impact of climate change, food insecurity)'.[81] The African Peace and Security Architecture Roadmap also identifies the linkages between climate and conflict, noting that 'climate change is threat multiplier and as such, exacerbates security trends, tensions and instability'.[82]

In addition, other regional organizations have taken laudable cooperative measures to address climate change, including ASEAN. Although the countries in the ASEAN region are not significant contributors of GHG emissions, they have nonetheless taken action to mitigate them. The 2003 Declaration of ASEAN Concord II highlighted that if the region's countries are to reach their full potential, they must acknowledge the issues of population growth, environmental degradation, transboundary pollution and disaster management.[83] Building on this, ASEAN in 2015 adopted a Declaration on Climate Change and Resilience committing countries to economic, social, cultural, physical and environmental measures aimed at reducing vulnerabilities associated with natural disasters and climate-related risks. The signatories agreed to mainstream disaster risk management and climate change adaptation into their multi-level policymaking.[84]

Food security has also long been an issue in the region, made worse by the 2007–2008 global food crisis. In response, ASEAN established its Multi-Sectoral Framework on Climate Change: Agriculture, Fisheries and Forestry towards Food Security (AFCC) in 2017 to provide coordinated support for efforts addressing food insecurity caused by climate change.[85] In October 2021 ASEAN issued its first State of Climate Change Report,[86] which provides

BOX 4.1. OSCE MINISTERIAL COUNCIL DECISION

On 2–3 December 2021, 50 foreign ministers and other high-level delegates met in Stockholm for the 28th Ministerial Council of the OSCE[a]—the culmination of Sweden's yearlong chairpersonship. With the slogan 'our commitments, our security, our OSCE', Sweden went 'back to basics' to emphasize the European security order and the OSCE's comprehensive approach to security.[b]

During the opening session the Chairperson in Office and Swedish Minister for Foreign Affairs, Ann Linde, suggested making greater use of the OSCE's convening power to inspire and share expertise on issues such as climate-related security risks.[c]

On the third and final day a decision was passed on 'strengthening co-operation to address the challenges caused by climate change'. This was the first decision at the highest political level in many years acknowledging the risks stemming from climate change. It was also the first time the 57 participating OSCE states had been able to agree on how to cooperate to address the challenges posed by climate change.[d]

This strengthens the organization's mandate to work on climate-related challenges, including environmental restoration, early warning and renewable energy resources. The decision includes unprecedented language, acknowledging that climate-related challenges 'can exacerbate economic challenges and environmental degradation which may negatively affect prosperity, stability and security in the OSCE area', while cooperation can 'contribute to stability, resilience and prosperity in the OSCE area'.[e]

The Ministerial Council decision provides the OSCE with a unique opportunity to strengthen climate-related cooperation through its executive structures, participating states and cooperation with other multilateral organizations.[f]

[a] Organization for Security Cooperation in Europe, '28th OSCE Ministerial Council', accessed 3 Mar. 2022.

[b] Government Offices of Sweden, 'Programme of the Swedish OSCE chairpersonship 2021', 2021.

[c] Government Offices of Sweden, 'Statement by Sweden's Foreign Minister Ann Linde at the opening session of the 2020 OSCE Mediterranean Conference', 3 Nov. 2020.

[d] Organization for Security Cooperation in Europe, 'OSCE Chairperson-in-Office Linde announces new OSCE commitments on climate', 3 Dec. 2021.

[e] Organization for Security Cooperation in Europe, 'Strengthening co-operation to address the challenges caused by climate change', MC.DEC/3/21, 3 Dec. 2021, accessed 24 Feb. 2022.

[f] Barnhoorn, A., 'Taking climate security forward in the OSCE', SIPRI WritePeace blog, 15 June 2022.

an overview of climate change implications in the region and potential entry points for reaching the 2050 climate targets. The report includes a framework for transparency and transformative action aimed at helping countries mitigate and adapt to climate change. ASEAN also launched the 6th ASEAN State of Environment Report in the same year,[87] providing up-to-date information to support sustainable decision making and environmental conservation. ASEAN has also taken several measures in support of the WPS agenda, including its Women for Peace Registry created in 2018[88] and promoting an integrated approach to WPS that focuses on preventing and countering violent extremism, disaster reduction and climate change; and supporting women in peacebuilding and post-conflict settings.

The OSCE has long pursued environmental cooperation through its comprehensive approach to security, dating back to the 1975 Helsinki Final Act and its precursor the Conference on Security Co-operation in Europe.[89] Since then, the mandate has been furthered through the creation of the

Co-ordinator of OSCE Economic and Environmental Activities in 1997 and the Madrid Declaration on Environment and Security in 2007.[90] The latter stipulates that the OSCE has a complementary role to play in addressing climate change within its region vis-à-vis the UN. Throughout the years the OSCE's Ministerial Council has adopted decisions on various topics relating to the environment, including energy security and disaster risk reduction. The OSCE has also initiated several relevant projects targeted in its region, including 'identifying and mapping potential climate security hotspots, developing and implementing climate change and security risk reduction measures, and raising awareness of the linkages between climate change and security'.[91] More recently, in December 2021, the OSCE Ministerial Council adopted a decision on 'strengthening cooperation to address the challenges caused by climate change' (see box 4.1).[92]

NATO has continued to upscale the environmental protection policy it developed in the 1970s, which states that NATO-led forces 'must strive to respect environmental principles and policies under all conditions'.[93] Although NATO policy continues to evolve, the organization has historically perceived its role to be limited by its institutional identity as a military alliance.[94] More recently, in March 2021, NATO foreign ministers endorsed the NATO Climate Change and Security Agenda. This document not only elaborates on the impact of climate change on security, it provides clear guidelines on adaptation and mitigation measures. As part of the plan NATO will: (*a*) increase allied awareness and conduct an annual Climate Change and Security Impact Assessment; (*b*) integrate climate change considerations into its work, planning, training and capability delivery; (*c*) develop a NATO mapping and analytical methodology of GHG emissions arising from its military activities and installations; and (*d*) enhance outreach, including with partner countries and international/regional organizations active in climate change and security issues.[95] The first Climate Change and Security Progress Report to track the progress made was published during the 2022 NATO Summit.[96]

Some environmental policy frameworks have recognized degradation as a potential if not actual threat to peace and security. As far back as 1987 the World Commission on Environment and Development, in its Our Common Future report (commonly referred to as the 'Brundtland Report'), asserted that 'the whole notion of security as traditionally understood … must be expanded to include the growing impacts of environmental stress'.[97] Principle 24 of the 1992 Rio Declaration declares warfare to be inherently destructive of the environment.[98] The AU Climate Change and Resilient Development Strategy and Action Plan (2022–2032) addresses the climate aspects of environmental crisis and its interconnections with instability.[99] In 2019 the European Commission announced the European Green Deal, a landmark instrument aiming for net-zero GHG emissions by 2050. It also notes that global climate and environmental challenges are a significant threat multiplier and source of instability, and commits the EU to working with partners to increase climate and environmental resilience.[100]

With respect to development agendas, the environment and peace have rarely been seen as intersecting enablers of development. Ensuring environmental sustainability was the last of the eight, now defunct, Millennium Development Goals (MDGs),[101] though paradoxically environmental factors preconditioned attainment of all the other targets, such as eradicating hunger and poverty. Within the 17 Sustainable Development Goals (SDGs) and 169 targets in the 2030 Agenda (adopted in 2015),[102] however, environmental components—such as clean water and sanitation, climate action, life on land and below water, and clean and affordable energy—gained greater prominence. Despite this, their interconnectedness with all the goals and, especially, the nexus between SDG 13 (climate action), SDGs 14 and 15 (life on land and below water) and SDG 16 (peace, justice and strong institutions) must be reinforced and continuously promoted. In principle, the social and economic development sustainability pillars are closely linked with the environment, as well as being connected with peace and security. The preamble of the SDGs captures the essence of this, stating 'There can be no sustainable development without peace and no peace without sustainable development'. As yet, though, this has not been followed through with concrete action.

Agenda 2063,[103] Africa's 50-year strategic blueprint for inclusive and sustainable development, tackles questions of, among other things, sustainable natural resource management and biodiversity conservation; sustainable consumption and production patterns; water security; climate resilience and natural disasters preparedness and prevention; and renewable energy. Similar to the SDGs, Aspiration 4 of Agenda 2063 conjures a vision of a 'peaceful and secure Africa'. Given that Africa is the continent with the highest concentration of conflicts and empirical evidence of a rapidly degrading environment, policy interconnectedness between the environment and peace should have been placed foremost and made more conspicuous. The slogan of Agenda 2063—'The Africa We Want'—emphasizes the key importance of Africans being able to live in a healthy environment. The AU Strategy for the Sahel region also places environmental degradation at the core of the broader spate of fragility experienced in the region.[104] Elsewhere, ASEAN's Vision 2025 undertakes to realize a sustainable community that promotes environmental protection and adaptability to climate change.[105]

When it comes to human rights and humanitarian law frameworks, although there is no singular international instrument that comprehensively addresses the right to a healthy environment, nuggets can be distilled from a variety of international and regional instruments. The International Covenant on Economic, Social and Cultural Rights (ICESCR),[106] for example, notes that states must realize the right to health through, among other steps, improving all aspects of environmental hygiene, while the African Charter on Human and Peoples' Rights (article 24),[107] the American Convention on Human Rights[108] and the Escazu Agreement[109] all underscore the right to a healthy environment. Environment-related rights are also included in political

statements, such as the 1972 Stockholm Declaration's right to a healthy environment, the 1992 Rio Declaration's three conventions, and the ongoing efforts towards the Global Pact for the Environment.[110] In 2003 the Office of the High Commissioner of Human Rights issued a General Comment (No. 15) recognizing the right to water, which is inextricably linked to the highest standard of health.[111] The comment underscored the need to ensure environmental hygiene, including by protecting natural water resources from harmful substances and toxic water conditions. In 2013 the Convention on the Rights of the Child issued its General Comment No. 15 on the right of children to enjoy of the highest attainable standard of health. This included calling on states to address the risk of environmental pollution and take environmental measures aimed at tackling climate change—one of the biggest threats to a child's health.[112] Provisions for a healthy environment have continued to evolve, culminating in the historic adoption of UN Human Rights Council Resolution 48/13, which recognizes access to a clean, healthy and sustainable environment as a fundamental human right.[113] Additionally, over 150 UN member states have recognized the right to a healthy environment via legislation, litigation, constitutional law, treaty law or other legal authority.[114] Peace and security are also recognized human rights, enshrined in the African Human Rights Charter (article 23) and the 2016 UN Declaration on the Right to Peace.[115]

Environmental protection obligations during armed conflict are firmly enshrined in international humanitarian law (IHL) prohibiting the use of weapons that cause long-term environmental damage. Article 55(1) of the 1977 Additional Protocol I to the Geneva Conventions, for example, stipulates that: 'Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.'[116] In a bid to achieve better implementation of this and other similar IHL provisions, as well as reinforce the notion of environment-sensitive military operations and training, the International Committee of the Red Cross—custodian of IHL—has developed Guidelines on the Protection of the Natural Environment in Armed Conflict and Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict.[117]

4.4.2. Institutional advancements and gaps

Peace and environmental issues are managed by separate institutional mechanisms with partial intersections. In multilateral settings, however, efforts are being made to enhance coordination through mechanisms or programmes that speak to the areas where environment and climate change link to peace and security.

Within the UN system the intersection between climate change, environmental degradation and security is being addressed through several

BOX 4.2. CLIMATE SECURITY MECHANISM (CSM)[a]

In 2018 the UN created the CSM to strengthen system capacity in analysing and addressing the adverse impacts of climate change on peace and security. Based at UN headquarters in New York, it is an integrated set-up spanning the UN Department of Political and Peacebuilding Affairs, UNEP and UNDP.

The 'climate security agenda' is a recent political and policy framework that acknowledges the impact of climate change on security, and has been picked up by almost half the UN's member states in speeches, campaigns and policy since 2007. The introduction of the CSM has reshaped engagement on climate security, promoting joint action and acting as a reference point on climate security for stakeholders within and beyond the UN. Despite its small size, the CSM benefits from the strength of each institution it is part of. The office quickly gathered attention and has become a hub for climate security both among the Permanent Missions in New York and across UN actors.

In the early days, the CSM's aim was to raise awareness and help the UN system integrate a climate security lens into its work. As has become evident, a broad range of issues can be placed under the 'climate security' umbrella, including climate change adaptation and disaster risk reduction; resilient recovery and building back better; and conflict prevention and management capacities (e.g. facilitation, dialogue and consensus building).

In particular, there is demand for climate security analysis coming from UN Country Teams across the world. Integrating a climate security lens into field missions, however, requires both sufficient capacity and partnerships with local stakeholders. Given the complexity of addressing climate security, meeting the challenges that arise exceeds the capacity of any one actor operating in isolation—as such, an integrated approach is not only necessary but core to the very nature of the effort.

The setting up of the CSM was a result of several member states demanding that the UN's climate risk assessment capacity be strengthened. The work of the mechanism has now come to fruition with a focus on nine priority areas, a toolbox for field colleagues, and vast engagement in dialogue and trainings. As of 2022, however, the CSM finds itself in a different strategic environment to that of 2018, with a series of international climate conferences (NATO, COP25 and COP26) and Security Council meetings having highlighted the risks faced. Today's political landscape presents a new set of challenges—there are high expectations and considerable pressure to demonstrate meaningful responses to climate-related security risks and environmental challenges in the peacebuilding arena.

Given this growing demand, the CSM must consider how to best plot its supply. Here, the best course of action may not be to grow at UN headquarters, but to develop dedicated capacity for monitoring, evaluation, liaison and training.

[a] Born, C., Eklöw, K. and Mobjörk, M., 'Advancing United Nations responses to climate-related security risks', SIPRI Policy Brief, Sep. 2019; Eklöw, K. et al., *Climate Security: Making It #Doable* (Clingendael/SIPRI: The Hague/Stockholm, Feb. 2019); Sherman, J. and Krampe, F., 'The Peacebuilding Commission and climate-related security risks', IPI Global Observatory, 12 Nov. 2020; UN Political and Peacebuilding Affairs, 'Addressing the impact of climate change on peace and security'; and Albrecht, P., 'Joint efforts for sustaining peace: Meet the UN Climate Security Mechanism', UN System Staff College, 23 Aug. 2021.

institutions and interventions, including the UN Environment Programme (UNEP)'s Action on the Environment and Climate Change,[118] and the UN Environment Assembly.[119] At the Secretariat level a lack of coordination between the environmental, peace, security and development spheres has led to the creation of the UN Climate Security Mechanism (CSM). The CSM[120] is the first dedicated capacity in the UN for an integrated approach to climate security and a step in the right direction towards institutionalization

(see box 4.2). However, although the CSM bridges research and practice from the field and delivers input to the UN system, it does not have sufficient staff, time or budget to accommodate broader environmental issues.[121] Hence, institutional gaps continue to hamper the UN's collective ability to respond to security risks arising from environmental degradation.

At a political level, while the UNSC has continued to recognize the growing security risks associated with environmental degradation and climate change,[122] it has yet to adopt a systematic response to them,[123] thereby impeding an integrated approach.[124] Despite the multiple debates held by the UNSC, it has not officially recognized the environmental crisis as a cross-cutting challenge on its permanent agenda, with environmental issues remaining politicized.[125] Some of the largest contributors to environmental degradation are permanent members of the UNSC, which often creates contradictory institutional responses to climate change. The composition of the UNSC has also hampered its capacity to speak collectively on the need for immediate action addressing environmental degradation. Proposed UNSC resolutions have garnered overwhelming support only to be voted down or vetoed.[126] Despite the UNSC's political limitations, it is important to note that full-time environmental advisers have been appointed to UN peace missions, including the UN Assistance Mission in Somalia (UNSOM) and the UN Mission in South Sudan (UNMISS).[127] This has enabled greater integration of climate considerations in peacebuilding processes and post-conflict recovery.

Within the EU it is not possible to identify one dominant institution or policy area where environment- and peace-related challenges are dealt with. Although they have most commonly been addressed in relation to the CFSP, such issues extend across multiple policy domains. Climate-related security risks are regularly highlighted in Foreign Affairs Council conclusions and documents produced by the European Commission, European External Action Service and European Parliament.[128] The agenda of the Political and Security Committee, which is responsible for the CFSP and CSDP, regularly includes topics relevant to stemming climate-related security risks. This suggests support for discussing climate-related security issues, but a lack of clarity on what concretely measures to take.[129]

The OSCE has developed a comprehensive approach to security that seeks to build stability, peace and democracy across three dimensions: (*a*) politico-military; (*b*) economic and environmental; and (*c*) and human rights. In order to assess the security risks arising from economic, social and environmental factors, the OSCE created the Office of the Coordinator for Environmental and Economic Activities. Related issues have also been addressed in the Permanent Council and the Economic and Environmental Committee.[130] The importance of addressing these issues is further reflected by the September 2019 creation of the OSCE Informal Group of Friends of Environment, which recognizes 'the close connection between the environment and security [and] aims to strengthen co-operation on environmental issues as part of a broader effort to prevent conflicts, build

mutual confidence and promote good neighbourly relations'.[131] More recently, there have been discussions on climate and security in the Parliamentary Assembly and Ministerial Council.[132]

Elsewhere, ASEAN is institutionally advanced when it comes to addressing non-military problems—including environmental degradation—that have military repercussions. It has embraced the notion of 'comprehensive security', whereby security goes beyond military and territorial issues to incorporate political, socio-economic and environmental dimensions.[133] The 2002 Joint Declaration on Cooperation in the Field of Non-traditional Security Issues adopted by ASEAN and China represents an early example of the securitization of non-traditional security issues.[134]

Although several institutions and interventions are engaged in climate adaptation and resilience in the ASEAN region, there are several gaps to consider. For one, there is no central hub or mechanism in Southeast Asia to coordinate different cross-sectoral policies.[135] As a result, climate adaptation responses are often done at a sectoral level rather using integrated and cross-sectoral approaches. Moving forward, it is important that the region continue deepening its multilateral cooperation when it comes to responding to non-traditional security threats such as the environment. In particular, given the differing levels of economic development across ASEAN members, collectively strengthening the region's technological capability to respond to climate adaptation and mitigation may be a useful approach.[136] Similarly, establishing effective climate finance mechanisms in order to strengthen regional resilience and reduce dependence on foreign aid is another potential way forward.[137]

Another issue to contend with is the obligation of ASEAN members to adhere to the 'ASEAN Way'—fundamental principles set out in the ASEAN Charter that stress the need for consultation and the upholding of sovereign rights and a non-interference policy.[138] This obligation has made it difficult for ASEAN to successfully resolve such issues as transboundary haze.[139] Some, though, have argued that the ASEAN Way and its emphasis on interstate cooperation could in fact be well-suited to environmental protection by, for example, providing a framework for a cooperative ecosystem management regime.[140]

Two groups within NATO are responsible for addressing environmental protection: the Environmental Protection Working Group (under the Military Committee Joint Standardization Board, which reports to the Military Committee) and the Specialist Team on Energy Efficiency and Environmental Protection (under the Maritime Capability Group 'Ship Design and Maritime Mobility', which reports through the NATO Naval Armaments Group to the Conference of National Armaments Directors). In 2003 and then later in 2011 engagement between these two groups led to the adoption of the NATO Military Principles and Policies for Environmental Protection,[141] which recognizes the need for harmonized environmental principles and policies across all NATO-led military activities. It also provides a framework for reducing the environmental impact caused by military activities.

The AU has made significant strides in creating policy responses to what it deems 'a threat to human security'[142] and a 'threat to global peace and security'.[143] Specifically, the AU Commission has created the AU Climate Cluster (AUCC), a coordination mechanism that seeks to strengthen policy responses to emerging environmental/climatic risks and conflict. The AUCC thus provides climate risk analysis that feeds into the Commission's conflict responses at every stage of the cycle. At a political level the AU Peace and Security Council oversees decision making concerning climate change implications for human security—the Bamako Declaration[144] and the AU Border Governance Strategy,[145] for instance, each explore the impact of climate change on livelihoods and the compounding risks faced by borderland communities, especially herders and farmers. While the AU has not been limited by policy coordination, there remain gaps in implementation, including the appointment of a dedicated special envoy.

While policy elements aimed at addressing environmental risks for peace exist, albeit in a fragmented manner, they leave a lot to be desired when it comes to fostering peace and mitigating environmental damage. This gap is reflected in the relevant response mechanisms, which usually lack a hub capable of addressing the interconnected risks identified above in a coordinated manner. New policy pathways are therefore needed in order to prevent and manage these risks in a more integrated and sustained manner.

4.5. Policy approaches for preventing and managing interconnected risks and sustaining an environment of peace

While some manifestations of environmental change and their consequences for global security are now irreversible, others can be prevented or are fully or partially reversible. Doing so, however, requires appropriate and timely policy interventions. Given that environmental degradation-induced instability and the impending tipping points vary across geographical space and time, not to mention scales and pathways, the existing norms and institutional mechanisms used to respond to them—which focus on isolated risks—are often inadequate. Policy responses therefore need to integrate the theory of change for an environment of peace while being mindful of the constant (rapid, abrupt and sometimes unprecedented) shifting of natural and security landscapes. This section explores innovative policy approaches aimed at addressing environmental and peace risks; minimizing conflict-related or -inducing environmental damage; and fostering a peaceful, sustainable transition.

4.5.1. Preventing environment-related peace threats

While environmental degradation, like conflict, is predictable and preventable, the same is not necessarily true of its consequences or interplay with other

factors. Conventional wisdom, backed up by ample evidence, maintains that prevention is better than cure.[146] Although the current intertwined challenges of environmental degradation and human insecurity are daunting, there remains considerable scope for preventing the occurrence, spread and resurgence of conflict provoked by environmental stressors or backdrafts (transition injustices and tensions); and environmental damage resulting from armed conflict. As such, preventive multi-pronged interventions are required, including but not limited to early warning, normative, operational and other safeguarding measures aimed at forestalling the outbreak, spread or reoccurrence of conflicts and instability in a changing natural environment.

4.5.1.1. Normative pathways

Norm setting is important for standardized and customizable policy responses. However, existing norms reveal three gaps that must be addressed in any new normative framework built around an environment of peace: (*a*) interlinkages; (*b*) impacts; and (*c*) safeguards.

With respect to interlinkages, there is no legally binding treaty or framework on either the environment as a whole or its interconnection with security. While developing a comprehensive treaty offers a potential pathway, the average time for treaty elaboration, negotiation and collective buy-in, adoption, entry into force, domestication and effective implementation is too time-consuming given the rapidly evolving interconnected risks that threaten an environment of peace. The Paris Climate Agreement, for instance, was a landmark product of years of negotiation during which global surface temperatures continued to rise. Regardless of the lack of momentum for a comprehensive international legal instrument, the importance of global norms is key. A UN declaration or resolution specifically dealing with the environment–peace nexus, alongside other remedial measures and similar resolutions at regional levels, would undoubtedly boost efforts towards creating an environment of peace. This is advocated as one of multiple solutions, not a panacea.

Normative instruments are needed to address the consequences of environmental degradation on human security, especially in terms of mobility. While environmental degradation is not the sole trigger, part 2 of this report provides ample evidence that it exacerbates the crisis of forced displacement—one of the worst forms of humanitarian crisis. Addressing this crisis requires a comprehensive approach that encompasses root causes, assistance and protection, and adaptation considerations. Normative pathways can reinforce both assistance to and protection of victims of environmental degradation.

In 2021, 22.3 million people worldwide fled their homes due to extreme weather.[147] According to the World Bank, climate impacts could drive up to 216 million people into internal displacement by 2050,[148] while another study suggests that as many as 1.2 billion people could be at risk of displacement by this time.[149] Despite this, existing international frameworks—such as the 1951 Refugee Convention and its 1967 Protocol, the Cartagena Declaration,

the 1969 OAU Refugee Convention and the 2009 IDP Convention—do not accord adequate attention to this unique category of forcibly displaced persons.[150] Although environment-related displacements (and trends) were relatively less evident at the time of these frameworks' elaboration, the contemporary reality of climate change and environmental degradation means there is a new and urgent push factor to be considered.

Legal precedence (the 1967 Protocol) allows for a definitional expansion of refugees in response to crisis/security risks not covered in existing normative frameworks. Prior to this, the 1951 Refugee Convention restricted refugee status to those whose circumstances had come about 'as a result of events occurring before 1 January 1951', as well as giving states that were party to the Convention the option of interpreting this as 'events occurring in Europe' or 'events occurring in Europe or elsewhere'. The 1967 Protocol removed both the temporal and geographic restrictions, instead defining a refugee as 'someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion'.[151] This was necessitated by the historical context of refugee flows resulting from decolonization. The OAU 1969 Convention further broadens the scope to cover persons affected by serious public disorder and conflicts. The current legal definition of refugee is, however, not sufficiently adapted to forced displacement generated by environmental factors. As such, there is an urgent need for multilateral institutions—especially the UN—and states to further expand the legal criteria for refugees to include those forcibly displaced by natural and environmental pressures. Similarly, normative frameworks should be extended to include internally displaced persons, and an international mechanism for protection created within the prism of fostering an environment of peace.

In addition to an overarching legal framework on the environment and peace, specific normative initiatives should also be considered, such as a fossil fuel non-proliferation treaty[152] or the codification of environmental damage (ecocide) as a war crime.[153]

4.5.1.3. Integrated early warning and early action

The UN Office for Disaster Risk Reduction defines an early warning system as 'an integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events'.[154] In effect, disaster and conflict early warning involves the regular collection and analysis of data (regarding environmental or conflict variables) through systematically monitoring and reporting on indicators. This in turn facilitates the formulation of policy response options that can be communicated to decision makers. While disaster and conflict risk

early warning and assessment are well advanced, the tools do not currently speak to each other.

In terms of climate change, the relevance and necessity of early warning systems is recognized in the Paris Climate Agreement (Article 7, paragraph 7c).[155] Similarly, global, regional, sub-regional and traditional disaster early warning tools have been developed with indicators for various phenomena, such as floods and droughts.[156] The AU Multi-Hazard Early Warning System, for example, provides African member states with the capacity to analyse their drought- and disaster risk-related risks.[157] Conflict early warning mechanisms have also been designed to forecast the outbreak of armed conflict or, at a minimum, detect early escalations of violence.[158] Nonetheless, there remains a huge gap between early warning and early action. Moreover, the link between disaster and conflict forecasting tools needs to be strengthened given that they are mutually reinforcing. More generally, in order to bridge the gaps in policy and institutional responses to environment-related security risks, coordination between environmental and disaster risk reduction early warning tools and existing conflict early warning tools must be enhanced.

A good example of a conflict early warning tool that utilizes environmental and climate-related indicators is the AU Continental Early Warning System (CEWS), as well as the regional conflict early warning systems located within the structures of regional economic communities/mechanisms in Africa. Largely designed to mirror the EU Conflict Early Warning System, AU CEWS has attempted to advance the agenda of identifying hotspots of 'climate security' vulnerability—areas where a confluence of vulnerabilities puts large numbers of people at risk of death from climate-related hazards.[159] It incorporates four 'baskets', each with distinct indicators that underpin vulnerability assessments: (*a*) physical exposure; (*b*) population density; (*c*) household and community resilience; and (*d*) governance and political violence.[160] The AU early warning system goes a step further in linking early warning with early action in response to environmental-related threats—the Continental Structural Conflict Prevention Framework, which outlines Africa's structural vulnerabilities to conflict, includes environmental degradation as a key indicator.[161]

With Ghana, Cote d'Ivoire and Zambia having already undertaken the voluntary assessment under this framework, AU member states are now designing environment-sensitive national mitigation strategies in response to vulnerability assessments. Meanwhile, the EU, through its Conflict Early Warning System, is attempting to close the gap to early warning by prioritizing at-risk countries.[162] This evidence-based risk management tool is based on 10 key factors, and includes measurements of climate change as well as environment and disasters.[163]

Similarly, the Water, Peace and Security (WPS) partnership—a collaboration between the Netherlands Ministry of Foreign Affairs, the German Agency for International Cooperation, and several non-governmental organization (NGOs) and research institutions—has developed environmental-

related early warning systems that can enable more effective responses when it comes to promoting human security and preventing or anticipating violent conflict.[164] The WPS Global Early Warning Tool identifies potential hotspots for water conflicts as starting points for developing local responses.[165] Through machine-learning technology, the WPS Global Early Warning Tool provides information on conflict potentials and the underlying inputs and contextual indicators motivating them. Once a conflict hotspot has been identified, the WPS regional tool is used to help tailor interventions in close cooperation with local actors.[166] The local tool integrates hydrological data (rainfall and evaporation) with a water use and allocation model to identify key drivers of conflict and develop problem-specific responses. Human response modelling is applied to dig deeper into local contexts and provide insights on the push-and-pull factors impacting responses to water stress and the reduced availability of water-related ecosystem services.[167] These early warning models can help strengthen dialogue around climate change and security, thereby enabling timely and effective action. The WPS partnership—which is currently working with actors in Ethiopia, Iraq, Kenya and Mali—engages in capacity development, dialogue and joint analysis with local stakeholders in order to generate shared understandings of water–society links and map out sustainable solutions for future action.[168]

A number of climate security warning systems, such as UNEP's web-based STRATA platform, are also adopting broader vulnerability frameworks that incorporate, among other factors, environmental exposure and adaptive capacity.[169] Such coordination is already embedded in current definitions of 'early warning' and should be further operationalized. Given the robust early warning capabilities at the EU's disposal—specifically, the Conflict Early Warning System within the European External Action Service, and the disaster early warning systems within the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO)—what is needed is an integrated analysis mechanism that draws on the strengths of these two systems.

Such integrated efforts need to be multiplied across institutions and regions. One new area not sufficiently covered is preparedness for risks arising from climate or environmental tipping points. If and when global 'core' or regional 'impact' tipping points are reached, systemic and disruptive shifts in natural and human (e.g. food chain) systems may lead to sudden conflict triggers.[170] These must be tracked through clear and integrated indicators that recognize the disparate timeframes over which environmental tipping points are projected to unfold relative to current early warning systems, which typically focus on time horizons that extend just a few months to a year ahead.

While early warning helps in recognizing the 'writing on the wall', it must be combined with early interventions aimed at preventing or mitigating hazard impacts. In other words, it is important to go beyond merely recognizing environment-related triggers to conflict—the structural drivers must be addressed. Moreover, especially in the case of imminent or unfolding security

implications arising from (abrupt or slow-onset) systemic shifts in ecological or climate systems, early warning must induce early action. Time is of essence when it comes to implementing interventions apt to prevent conflict initiation or escalation.

4.5.1.4. Human rights approach

A healthy environment, peace and security are officially recognized as human rights in various human rights instruments (see section 4.1) and agendas, with specific charter- and treaty-based monitoring mechanisms (see section 4.2). Like peace, a safe, clean, healthy and sustainable environment is integral to the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and sanitation. As such, promoting and protecting these rights in an integrated manner through legislation and other measures potentially prevents large-scale violations that may threaten peaceful coexistence in the society. In countries where environmental degradation has triggered or risks triggering conflicts, promoting the right to a healthy environment through targeted programmatic interventions or civil society/ stakeholder advocacy could prevent conflict outbreak or spread.

In this vein, the October 2021 UN Human Rights Council resolution that recognizes the 'right to a safe, clean, healthy and sustainable environment'[171] while encouraging countries to adopt commensurate policies offers a useful advocacy framework. Though not legally binding, the resolution is a 'historic breakthrough' with the potential to shape global standards for a healthy environment in ways that can strengthen human security and foster peace. An additional resolution further acknowledged the human rights impacts of climate change by establishing a Special Rapporteur dedicated to the issue.[172] Tools such as the Universal Periodic Review should also be utilized to strengthen the response of the UN and its member states by insisting on the reporting of actions taken at the national level.[173]

4.5.1.5. Preventing environment-related structural violence

The nexus between preventing structural violence and climate and environmental justice is complex and multifaceted. Within the national context, environmental degradation or climate change impacts creates structural conflicts whereby those who already have greater access to resources (such as fertile land or monetary resources for adaptation) are in relatively higher social positions, meaning they are not only able to acquire more fertile land or further adapt, but can influence the country's environmental policies. The same applies between countries or regions, or where multinational corporations produce spillover effects that directly (e.g. GHG emissions) or indirectly (negative environmental and security impacts in supply chains) affect developing countries and local livelihoods. Environmental and climate justice therefore requires forward-looking policies that compensate the victims of non-self-induced climate/environmental impacts while addressing the underlying structural factors driving environment-related conflict.

4.5.2. Navigating complex risks: Adapting governance to the wickedness of multi-crisis

As established in the key findings, environmental degradation overlaps with scarcity, poverty, inequality, forced displacement, governance deficits and conflict vulnerability in many parts of the world. In several countries and communities in the Middle East, Asia, Latin America and across the Sahel belt in Africa, the combined effects have reached crisis point, driving human insecurity and violent conflict over access to and use of land, forest and water resources, while inflicting further damage on the environment. This mutually reinforcing twin crisis is projected to intensify and spread if urgent efforts are not made to address it. Although some initiatives for transitioning to a green economy hold significant promise for sustainability, they also have implications for peace and stability that call for considerable caution. Moreover, many already established initiatives, such as the environmental targets of the SDGs, continue to face implementation gaps. Meanwhile, more recent initiatives—such as the FREXUS Project operating in Niger, Mali and Chad—have targeted the peaceful resolution of social tensions and conflicts caused or exacerbated by the effects of climate change (see 'The Frexus Project: A Response to Resource Conflict in the Sahel Region' in the annex). Given the global, non-linear, continuous and multi-layered nature of the emerging twin crisis, an accelerated, multi-pronged and adaptive crisis management approach—combining long-term analysis and strategic goals with mid-term planning and short-term action—must be collaboratively adopted by policymakers and stakeholders at all levels (strategic and operational). Drawing from good practices and lessons learned, this section explores solution-oriented options for navigating this new era of complex risks.

4.5.2.1. A new institutional crisis management framework?

One crucial question to ask in the context of a rapidly degrading environment and darkening security horizon is whether we need to build a new global infrastructure or instead adapt what already exists.

In terms of adapting existing international mechanisms the UNSC represents a key institution, as its mandate can be interpreted as encompassing environmental threats to international peace and security. The UNSC also holds the power to manage the environmental consequences of warfare, as seen during the 1990 Gulf War when it held Iraq liable for deliberately firing Kuwaiti oil wells and the consequent oil spill into the Persian Gulf.[174] In a pioneering UNSC resolution, Kuwait was awarded compensation of $610 million,[175] underscoring that environmental harm beyond the limits of the laws of armed conflicts constitutes 'an act of aggression, breach of peace and threat to international peace and security'. This precedent strengthens the case for a UNSC mandate to address environmental concerns in similar situations of armed conflicts, including civil and proxy wars.

Beyond the bounds of armed conflict, however, it is hard to envision a UNSC mandate on environmental issues or related human security risks such as scarcity. Furthermore, even within the confines of war and violence conflicts, challenges exist when it comes to reinterpreting or expanding the UNSC's mandate to cover environmental issues. Such hurdles relate to the dissenting geopolitical interests represented in its permanent membership and the risks of pursuing unilateral and punitive military action on environmental grounds. Moreover, the potential for a UNSC-mandated military intervention to orchestrate further environmental damage cannot be overlooked. While military intervention may halt or stop the environmentally destructive behaviours of conflict parties, it has limited or no utility as a strategy for environmental repair. As the World Commission on Environment and Development observes, 'there are no military solutions to environmental insecurity'.[176] Finally, the fact that the UNSC's permanent members are among the largest GHG emitters (responsible for 47.61 per cent of global emissions)[177] neither suggests model behaviour nor inspires confidence.

Nonetheless, the UNSC's existing mandate, institutional clout, convening power and growing recognition of climate change peace threats gives it a significant global advantage. Given this, the following potential entry points are proposed: (*a*) include scientific evaluation on environmental conflict triggers or risks, as well as the impact of conflict on the environment, in UNSC fact-finding missions; (*b*) integrate expertise in environmental repair and sustainable development into the civilian components of UNSC-mandated peacekeeping and stabilization/peacebuilding missions; (*c*) address any contentious environmental-related issues—such as land reform, natural resource management or employment in climate-sensitive sectors—in UN-negotiated peace agreements and evaluate the impact of such provisions on peacebuilding; (*d*) use the UNSC's good offices (article 36:3 of the UN Charter)/special envoys; and (*e*) equate widescale environmental damage with a massive violation of human rights, thereby justifying activation of the UNSC intervention mandate on the basis of the UN Human Rights Council's recognition of the right to a clean, healthy and sustainable environment.

Although contentious policy considerations and differences in the national interest priorities of the UNSC's permanent members continue to impair genuine political will when it comes to promoting a global environment of peace, the UNSC cannot be sidelined in global institutional responses to the emerging twin crisis.

In addition, there are other UN agencies—such as the Human Rights Council—and inter-agency platforms that can play complementary roles in addressing issues of environmental degradation that do not pose direct threats to peace and security. The Peacebuilding Commission (PBC), which operates on the basis of national ownership and cross-pillar UN action, is another agency with the means to reinforce environmental peacebuilding.[178] The PBC works closely with the Peacebuilding Fund, which since 2017 has contributed more than $63 million to climate security projects around the

world.[179] Alongside its support architecture, the Peacebuilding Support Office (PBSO), the PBC can convene stakeholders, design strategies that integrate climate considerations into peacebuilding processes, and mobilize traditional and non-traditional funding resources behind national peacebuilding priorities.[180] Moreover, it can serve as a platform for countries to exchange experiences and good practice on climate adaptation, resilience and preparedness.[181]

The UN Environment Assembly (UNEA)—an outcome of the 1972 Stockholm Conference[182]—unites political leaders across UN member states, is the governing body of UNEP, and is the highest decision making-level body dedicated to the environment.[183] It may therefore be worth strengthening this institution with a view to it coordinating intergovernmental efforts on the environment and peace.

Thus far, the evidence suggests it may not be efficient to create an entirely new global institution tasked with addressing emerging security risks related to environmental degradation. Instead, the UNSC remains the most viable institution on matters of international peace and security. Even so, the UNSC alone cannot address every environment-related human security risk. It must therefore strive for collaborative actions with its specialized agency platforms and other international, regional, national and community-based organizations. New and inclusive dialogue platforms should be created or reinforced at various levels, with a dedicated special envoy to promote the coordination and coherence of policy and action.

4.5.2.2. Enforcing long-term targets through short-term action

Given the geographic scope and geological magnitude of the crisis at hand, long-term analysis and planning is crucial. At the same time, although the global community needs to strive towards goals that lie 15–30, perhaps even more, years ahead, such targets only become meaningful if they are translated into roadmaps and short-term action. Moreover, short-term achievements help in building momentum towards more far-reaching goals.

Data on conflict and the environment over the past two decades suggests that existing threats are being aggravated in ways that outpace current responses. To maintain the status quo alone, any remedial action must be commensurate to the challenges faced. Going beyond this, reversing longstanding trends and meeting long-term targets requires that responses be accelerated, multiplied and multi-pronged. Most peace, development and environmental agendas set targets that lie decades, sometimes half-a-century, in the future. The SDGs and its predecessor (the MDGs), for instance, cast 15-year visions. Africa's Agenda 2063, adopted in 2013, envisions achieving 'the Africa we want' (peaceful and prosperous) by 2063—five decades later. The 2010 Strategic Plan of the UN Convention on Biological Diversity and its Aichi-Biodiversity Targets has been a failure, with none of its 20 targets achieved by 2020.[184] More recently, the new global targets set as part of the

BOX 4.3. WICKED PROBLEMS

The Anthropocene has plunged humanity into an unprecedented policy environment characterized by profound uncertainties about the workings of complex systems; high decision stakes regarding the costs/benefits of possible actions; and crucial differences over the values and objectives that should shape public choices.[a] Risks such as global climate change, biodiversity loss and the ongoing degradation of vital natural ecosystems pose particularly thorny challenges sometimes labelled as 'wicked problems'.[b]

So-named not for their ethical character but for their practical intractability, wicked problems possess several inter-related features.[c] First, wicked problems display significant complexity. They are composed of multiple, interconnected and interdependent elements, cutting across policy domains, societal sectors, and levels of governance or decision making. Second, they exhibit high degrees of uncertainty. Wicked problems are unstructured and unbounded. There is no definitive formulation of a wicked problem, no finite set of clear-cut policy options, and no ultimate test of how or when a solution is achieved. Knowledge of the problem space is incomplete. Causes and effects are contingent and context dependent, with relationships between problem components characterized by feedback loops and unanticipated side-effects. Finally, wicked problems manifest significant divergence in the perspectives and priorities of stakeholders. The parties involved not only have differing interests and objectives regarding wicked problems, they hold differing views of the issues at stake and apply differing values to addressing them. For example, when it comes to contending claims to shifting natural resource supplies should historical rights and established uses be privileged or the meeting of new demands? What kinds and what degree of environmental risk, if any, can present societies impose on future generations? Contrasting problem framings and value perspectives lead to disparate policy responses. Tackling wicked problems such as these will require new strategies and structures for managing complex risks.[d]

[a] Cosens, B. et al., 'Governing complexity: Integrating science, governance, and law to manage accelerating change in the globalized commons', *Proceedings of the National Academy of Sciences*, vol. 118, no. 36 (Sep. 2021).

[b] Rittel, H. W. J. and Webber, M. M., 'Dilemmas in a general theory of planning', *Policy Sciences*, vol. 4, no. 2 (June 1973).

[c] Termeer, C. J. A. M., Dewulf, A. and Biesbroek, R., 'A critical assessment of the wicked problem concept: Relevance and usefulness for policy science and practice', *Policy and Society,* vol. 38, no. 2 (June 2019); and Head, B. W., *Wicked Problems in Public Policy: Understanding and Responding to Complex Challenges* (Springer International Publishing: Cham, 2022).

[d] Kreienkamp, J. and Pegram, T., 'Governing complexity: Design principles for the governance of complex global catastrophic risks', *International Studies Review*, vol. 23, no. 3 (Sep. 2021); and DeFries, R. and Nagendra, H., 'Ecosystem management as a wicked problem', Science, vol. 356, no. 6335 (21 Apr. 2017).

post-2020 Global Biodiversity Framework at the UN Biodiversity Conference (COP15)[185] have a decades-long timespan.

The need to effectively integrate short-term actions with long-term goals can be seen far beyond the realm of multilateral conventions and international development agendas. Shell plc—the world's fourth largest polluter—has insisted it can transition to net zero by 2050, but will need the cash from its oil and gas business to pay for it.[186] Pushing for a more accelerated strategy, however, the Hague District Court—in the case of Friends of the Earth Netherlands (Milieudefensie) versus Shell—on 26 May 2021 ruled that Shell must reduce worldwide CO_2 emissions stemming from its production (including so-called Scope 3 indirect emissions occurring throughout the company's value chain) by 45 per cent by 2030 (compared to 2019 levels), rather than postponing action towards 2050.[187] This marks the first time any court in

the world has imposed a duty on a company to prevent dangerous climate change, and to do so with greater urgency. At a time when government and companies are increasingly required to lower emissions, this decision sets a good precedent.

While long-term prognoses and the formulation of strategic goals are important, prevailing uncertainty over unforeseeable factors or emerging developments poses the risk of urgent action being deferred to avoid harm. Analyses should therefore address immediate (short-term) risks and actively inform rapid responses by combining low-regret short-term actions with long-term options to adapt.[188] Planning may need to be based on assumptions and analysis of a wide variety of relevant uncertainties, thereby enabling short-term actions with a view to connecting them to both short- and long-term goals.[189] Regardless of any perceived necessity to avert imminent harm, it is important to acknowledge our responsibility and moral obligation towards future generations.

Complementing long-term goals with short-term objectives and action plans can help in reinforcing a sense of urgency and expediting responses. The Paris Agreement, for instance, has a five-year reporting cycle with ratcheting-up mechanisms. While laudable, its translation into national emission reduction milestones and programmes is fraught with methodological challenges and technical, financial and governance constraints.[190] To date, the quest to create incentives that lead to the prioritization of long-term environmental benefits—or at the least the avoidance of environmental collapse—over short-term gains has yielded little progress. Emphasizing the inherent security risks may offer an entry-point that allows long-term goals to be folded into short-term objectives and accelerating action towards mid-term milestones.

4.5.2.3. Adaptive governance: Doing while learning

Sometimes referred to as being 'wicked problems' (see box 4.3), the interplay of environmental degradation and (human) insecurity is difficult to comprehend, let alone address. The ambition to 'solve' the climate or even the planetary emergency appears illusory given the contradictory, ever-changing and often unforeseeable factors at play.[191] Addressing such problems frequently requires complex large-scale collective action and coordination,[192] and even this is seldom sufficient to respond to the full range of challenges the multi-crisis poses.

The evidence presented in this report indicates the limited effectiveness of conventional planning and static governance approaches, as solutions to shifting intertwined challenges cannot emerge from an ex-ante position or a reliance on fixed timing. Given the urgency of the planetary crisis, governance responses must be tackled iteratively and build on continuous learning from emerging experiences and changing circumstances.[193] Assumption-based planning[194]—exploring uncertainties and connecting short- and long-term targets/action while monitoring ongoing developments and retaining contingency options—or classic 'learning by doing',[195] however, may falter in the

face of the unforeseeable, ever-evolving changes wrought by the intertwined environment and security crisis. As such, a more dynamic governance approach is needed to spur action. The dynamic adaptive policy pathway approach, for instance, emphasizes a combination of contingency planning and continuous monitoring/learning, thereby allowing for periodic adjustment of the implementation plan.[196] The urgent and highly unpredictable nature of the environment–security crisis demands that action and adjustments be synchronized.

In other words, we need to be *doing while learning* (see figure 4.2), a concept that emphasizes the need for immediate—yet prudent (precautionary)—anticipatory and reflexive action, while simultaneously monitoring for emerging factors, changing contexts or new challenges (whether deriving from the action itself or externally). Doing so requires expanding learning horizons beyond the intervention itself in order to incorporate external factors and evolving dynamics. To respond to the obvious inflation of challenges, complexity can be artificially reduced by decreasing the number of steps within the planning cycle or considering fewer dimensions of complexity. However, the action-assessment cycle (i.e. learning process) would need to be adequately shortened to compensate for this loss of complexity.

'Doing while learning' highlights time sensitivities. With less than eight years remaining for achievement of the 2030 Agenda, as well as the halving of global emissions, time is of the essence. It is inevitable that mistakes will be made and improvements will need to be made on the go, and this should be acknowledged. At the same time, even as action continues, mechanisms must be in place to quickly recognize and address emerging issues. In line with the precautionary principle, potential harm needs to be anticipated and actively pre-empted. Through this readiness to adapt, stakeholders acknowledge that unforeseeable and unintended mistakes can be addressed through adaptive governance.

4.5.2.4. Acknowledging inherent contradictions and trade-offs

As part 3 of this report shows, applying static models of analysis and planning to complex problems often has unintended consequences, worsening the situation. Given the complexity of the environment–security interplay and the ever-evolving action–reaction relationship needed to address it, you cannot solve a wicked problem so much as merely 'help stakeholders negotiate shared understanding and shared meaning about the problem and its possible solution'.[197] This spotlights the need for, on the one hand, a participatory, multi-stakeholder approach and, on the other, new methods of governance.[198] Further education among the general public regarding the complexity of most social, economic and environmental problems seems imperative, yet depends on recipients' willingness to embrace it. The promise of quick solutions often distracts focus from the root causes of a crisis.[199]

The 'wickedness' of complex risks, together with pressing economic and political constraints, occasion inevitable 'trade-offs' when it comes to solution

attempts. For instance, though the urgently needed transition from fossil fuels to renewable power sources inevitably leads to economic distortions and geopolitical shifts, one cannot happen without the other. Just as it is clear that urgent action is required to avoid escalation of the environment and security crisis, so it is clear this will produce winners and losers. Such trade-offs cannot be avoided or ignored. Here, the 2030 Agenda offers a prominent—if not the prime—example of system-inherent contradictions and trade-offs, with no quick-fix alternatives on offer.

4.5.3. Sustaining an environment of peace: Fostering resilience based on accountability

Stable and lasting peace is essential to any policy intervention aimed at bringing about change. Within a framework of environmental protection and safeguarding, sustainability must focus on self-perpetuating adaptive responses that encompass institutional, normative, cultural, social, political and economic dimensions. The following strategies aim at building a sustainable basis for a resilient environment for long-term peace and security.

4.5.3.1. Transformative approach: Building the knowledge base for current and future generations

While accelerated short-term actions are required to manage the immediate effects of the twin crisis, sustaining an environment of peace involves a transformative approach that builds on short-term gains. The state of the environment and human security in 2050 will depend on the actions taken (or otherwise) over the coming 30 years, meaning it is crucial that current and future generations of decision makers are educated on the interconnectedness of environmental and security risks.[200] This should be conducted through an integrated or innovative approach at all levels of formal and informal education to nurture environmental intelligence. An integrated approach entails mainstreaming environmental and peace studies into existing compulsory curricula (e.g. geography, social studies, natural sciences) while broadening education to incorporate the societal aspects and (un)desirable effects of transitions, as well as peace and justice discourses, in ways that paint a full picture of the challenges faced and solutions needed. An innovative approach, meanwhile, involves designing new interdisciplinary environment of peace programmes. The next generation must make significant advances when it comes to understanding and minimizing the interconnected risks of the Anthropocene, as well as upholding principles such as precaution, accountability, responsibility, self-determination, equity and human-rights-based justice.

4.5.3.2. Just and peaceful green transformation

Reducing GHGs and safeguarding ecosystems offers opportunities—both economic and in terms of addressing structural conflict vulnerabilities—for

BOX 4.4. THE DILEMMA OF GREEN TRANSITION AND SECURITY IN THE DRC: WHICH WAY FORWARD?*

The Democratic Republic of the Congo (DRC) is endowed with significant mineral reserves, including diamond, cobalt, uranium, gold, lead, tin, lithium, manganese, nickel, coltan, petroleum and copper—some of them the largest reserves in the world—offering huge potential for a green transition.[a] In particular, the country holds more than 70 per cent of the world's cobalt production, an important metal in the manufacture of electric batteries for vehicles. Consequently, the DRC has become the epicentre of competition as major global automakers commit to battling climate change by transitioning from gasoline-burning vehicles to electricity-powered alternatives. The intensifying power struggle between the USA and China over the control of cobalt in the DRC is illustrative of how the quest for clean energy can fuel tensions[b] —particularly in a context historically plagued by armed violence.

According to the Fragile States Index 2021[c] the DRC is the 5th most fragile country in the world, characterized by deep political, social, economic and environmental vulnerabilities, as well as natural resource governance deficits. Currently, there are over 100 armed militias operating in mineral-resource-rich Eastern DRC.[d] Past civil wars, as well as the ongoing activities of armed groups, have largely relied on the illegal exploitation of mineral resources such as gold, diamond, cobalt and coltan. This sustains the economy of conflict as the minerals find exit routes to global supply chains,[e] including in countries that are signatories to the Paris Climate Accords. In effect, these armed conflict-sourced minerals have reinforced weak governance systems and local grievances, resulting in cyclical violent conflict that poses risks to local livelihoods. Particularly at risk are the youth conscripted into armed groups; women taken as spoils of war; and Indigenous communities, such as the pygmies, affected by the destruction of socio-cultural and economic derivatives of the ecosystem.

These paradoxical dynamics suggest that despite the DRC's huge potential when it comes to contributing to a green transition, mineral resources conflicts, geopolitical tensions and rising levels of insecurity are heightening the environmental protection risks faced, with detrimental effects for human security in the DRC and the Great Lakes region more widely. A multi-pronged conflict-sensitive approach is therefore imperative if the DRC is to play a prominent role in the green transition without undermining its prospects for peace and security.

* By Robert Gerenge; see annex for the full case study.

[a] Geological Survey (USGS), *2016 Minerals Yearbook* (USGS: Reston, VA, 2018).

[b] Searcey, D., Forsythe, M. and Lipton, E. (2021) 'A power struggle over cobalt rattles the clean energy revolution', *New York Times*, 20 Nov. 2021.

[c] Fund for Peace, *Fragile States Index Annual Report 2021* (Fund for Peace: Washington, DC, 2021).

[d] Kivu Security Tracker, 'Armed groups', accessed 11 Dec. 2021.

[e] Vogel, Christoph. 'The politics of incontournables: Entrenching patronage networks in eastern Congo's mineral markets', Review of African Political Economy, vol. 48, no. 168 (2021); Vircoulon, T., 'Behind the problem of conflict minerals in DR Congo: Governance', International Crisis Group, 19 Apr. 2011; and UN, Security Council, 'Final report of the Panel of Experts on the illegal exploitation of natural resources and other forms of wealth of the Democratic Republic of the Congo', S/2002/1146, 16 Oct. 2002.

fostering social cohesion. Such opportunities are, however, dependent on the risks of conflict and human insecurity being adequately anticipated and managed. The Democratic Republic of the Congo (DRC), for instance, is already witnessing transition-related conflict trends over access to and control of its rich clean energy mineral and forest resources (see box 4.4). Ensuring

peace and security in the largest, most rapid energy transition in human history will require the equitable involvement of both local communities and the governments of resource-rich countries, whether in the Global South or North. All re-training and upskilling efforts must be monitored as to impacts on and benefits for disadvantaged groups. Moreover, comprehensive conflict analysis, gender-disaggregated and socially inclusive approaches, and sufficient financial resources will all be vital.

The richest 1 per cent of the world's population are responsible for double the carbon dioxide emissions and environmental pollution caused by the world's poorest 50 per cent.[201] The economic elite thus need to pay their fair share of the costs needed to propel the overdue global transformation towards lifestyles conducive to the planet's survival. Unfortunately, those belonging to this elite also the ones with the least incentive to change. In line with the Rio Principle of common but differentiated responsibilities, our business-as-usual approach must give way to fair and equitable burden-sharing, especially among those bearing the greatest responsibility for environmental and climate change. Doing so is key to sustaining an environment of peace.

Transformation sufficient to avoid overstepping the planet's stress limits also means reducing the pressure on increasingly scarce land resources and reversing land-intensive practices, particularly those used by high-consuming populations in wealthy economies. The World Resources Institute has suggested a four 'R' plan:[202] (*a*) *produce* more food, feed and fibre on existing agricultural land and some working forests; (*b*) *protect* remaining natural and semi-natural ecosystems (e.g. primary forests, secondary forests, wetlands, grasslands) from conversion and degradation; (*c*) *reduce* projected growth in demand for land-intensive goods, particularly by high consumers; and (*d*) *restore* degraded ecosystems and marginal agricultural land (with limited improvement potential) back to nature.

4.5.3.3. Integrated conservation: Synchronizing governance of the biosphere and anthroposphere

Conversion of natural land to support nutrition and other expanding human footprint needs is currently the leading cause of species extinction and wider biodiversity loss.[203] Ecosystem deterioration is the root cause of most pressing contemporary human (in)securities, including water shortage and quality decline; desertification and biodiversity loss; soil erosion and landslides; zoonotic diseases; and climate distortion. Tropical deforestation not only accounts for 8 per cent of annual GHG emissions,[204] but is directly linked to numerous (post-)conflict factors.[205] In 2020 forest loss in conflict-affected areas increased by 10 per cent, reaching 3.2 million hectares. Based on woody biomass lost in tropical areas alone, this deforestation amounts to some 1.1 million megatonnes of CO_2, equivalent to almost four times the UK's total emissions that year.[206] Achieving 'land degradation neutrality' is imperative from a human security perspective (i.e. ensuring the basis of

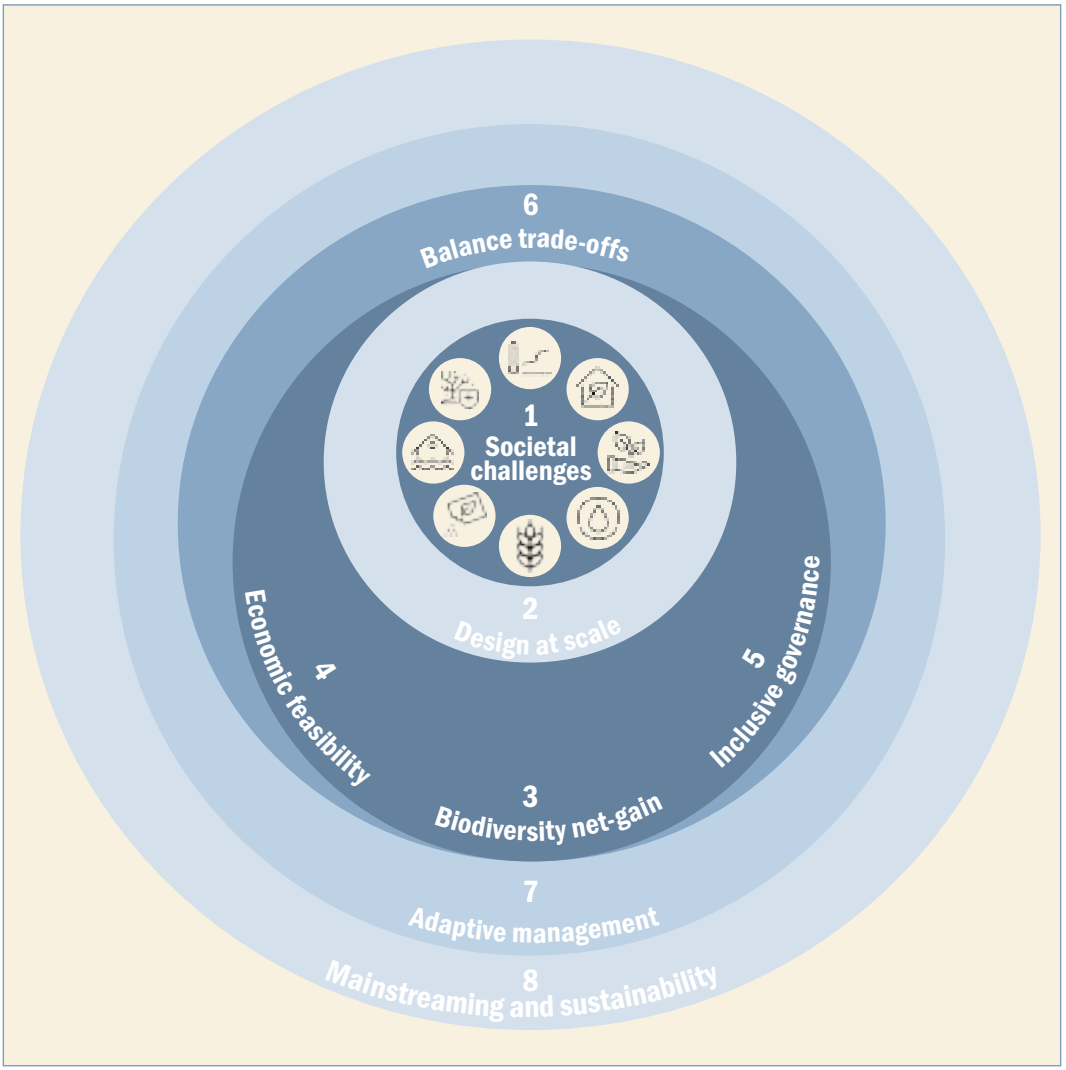

Figure 4.3. IUCN's Global Standard for Nature-based Solutions

Source: IUCN, *IUCN Global Standard for Nature-Based Solutions: A User-Friendly Framework for the Verification, Design and Scaling up of NbS* (IUCN: Gland, July 2020).

livelihoods are secured), and goes beyond reforestation to include combatting desertification and restoring degraded land and soil.[207]

As such, land and ocean areas must be protected in order to safeguard nature, with a special premium placed on highly biodiverse regions and ecosystems, such as tropical rainforests. Many governments and private actors have rallied behind initiatives such as the '30x30' campaign—which calls for 30 per cent of the world's land and ocean area to be designated as protected areas by 2030—or the objective of making the planet 'nature-positive' after 2030.[208]

At the same time, close to 295 million people live on tropical forest restoration opportunity land in the Global South,[209] and it is estimated that up to a billion people will be affected if the 2050 goal of the Global Deal for Nature, which aims to bring 50 per cent of the planet's surface under protection, is achieved.[210] In light of previous 'coerced conservation' failures (see part 3 of this report), concerns over how large-scale land set-asides will

affect Indigenous peoples' food security have been raised by both activists and UN Special Rapporteurs past and current.[211]

Ecosystem conservation and restoration must be aligned with efforts to promote (human) security. Eighty per cent of the world's 'biodiversity hotspots' are inhabited—and have been managed over centuries—by Indigenous peoples.[212] Without the full and equitable involvement of these communities, meaningful conservation will likely fail and the risk of conflict increase. Ecosystem interventions cannot and should not be dissociated from the socio-economic impacts on forest- and grassland-dependent communities.[213] Conflict-sensitive and peaceful nature conservation therefore needs to foster the human development of local communities, particularly women, the young and elderly, and other marginalized groups.[214]

Various initiatives have acknowledged the inseparability of the biosphere (all of Earth's ecosystems) and anthroposphere (the parts of the environment made or modified by humans).[215] For instance, the International Union for the Conservation of Nature (IUCN) has—based on an extensive multi-stakeholder consultation—developed a Global Standard for Nature-based Solutions that aims to place nature and local communities on an equal footing (see figure 4.3).[216]

4.5.3.4. Empowering local structures

The traction of political- and security-related ecosystem interventions (especially nature-based solutions) at the local level is still debated. What is clear, though, is that tensions can be curbed by ensuring the full engagement and prior informed consent of Indigenous peoples and local communities (IPLCs). Ensuring conflict-sensitive ecosystem conservation/restoration requires a prudent, inclusive, bottom-up approach to decision making that incorporates respect for cultural and ecological rights, as well as explicit and measurable benefits for biodiversity.[217] There is growing concern, however, that current attempts at environmental conservation are simply expanding government control into areas where it is grassroots Indigenous communities that should have more control.[218]

Beyond recognition and respect, the need for adequate local-level financial support for climate action and environmental management has long been a topic of discussion. Recent analysis has spotlighted an urgent need to increase access to financial means in fragile and conflict-affected contexts (see e.g. box 4.5). There has also been considerable focus on mobilizing private investment, with numerous sustainable investment strategies having been constructed over the past two decades, from 'exclusionary screening' to 'impact investing'; from 'environmental, social and governance (ESG) considerations' to profit-oriented endeavours.[219] More recently, however, the concept has been criticized for failing to adequately include the short- and long-term peace and security effects of environmental/climate-focused investments, particularly within developing countries.[220] This has prompted

BOX 4.5. ENVIRONMENTAL INTERVENTIONS IN FRAGILE AND CONFLICT-AFFECTED SITUATIONS: LESSONS FOR FUTURE PROGRAMMING*

Conflict and fragility affect environmental programming in diverse ways. The environment can interact with conflict across the conflict lifecycle, with natural resources potentially acting as a source of grievances, providing revenues to rebel groups during conflict, and/or acting as a mutual starting point during peace negotiations. Environmental interventions also interact with conflict and fragility in multiple ways. Challenges associated with hiring staff, accessing project sites and security threats to project staff can undermine an intervention's effectiveness, while environmental interventions themselves can aggravate tensions or conflict. To ensure the success, sustainability and safety of interventions in such contexts, practitioners and their sponsoring institutions must understand the complex dynamics at play and manage the risks accordingly. Employing a conflict-sensitive approach to programming helps ensure activities—whether they be directed at conservation, humanitarian assistance or other efforts—do not exacerbate or create conflict, but rather contribute to peace while improving environmental sustainability and other outcomes.

The experiences of the Global Environment Facility (GEF) provides a number of valuable lessons for environment practitioners. The GEF has invested over $4 billion in areas experiencing armed conflict or fragility, with more than a third of its global portfolio invested in countries affected by major armed conflict. A 2020 independent evaluation of GEF-supported programming in conflict-affected and fragile situations revealed statistically significant negative correlations between countries' fragility classifications and project outcomes, sustainability, monitoring and evaluation (M&E) design, M&E implementation, and execution quality.[a] In short, the absence of a systematic portfolio-wide approach and operational guidance to managing risks has impacted project quality, outcomes and sustainability.

The analysis, conducted by the GEF Independent Evaluation Office and the Environmental Law Institute, also demonstrated that a country's fragility classification has a significant impact on whether a project will be cancelled or dropped. A review of GEF project documents highlighted several pathways through which conflict and fragility can impact projects: (*a*) physical insecurity; (*b*) social conflict and mistrust; (*c*) economic drivers; (*d*) political fragility and weak governance; and (*e*) coping strategies. Analysis shows that when practitioners actively acknowledge and manage the risks posed by a context's conflict dynamics, they are able to adjust their project's design, implementation and M&E strategies to address existing and potential dangers. It also illustrates the primary risk-mitigation strategies employed by GEF implementing staff: avoidance, mitigation, peacebuilding and learning. Such approaches are consistent with those of other institutions.

* By Geeta Batra; see annex for the full case study.

[a] Independent Evaluation Office of the Global Environment Facility, *Evaluation of GEF Support in Fragile and Conflict-Affected Situations*, GEF/E/C.59/01 (Global Environment Facility, Nov. 2020).

questions as to whether existing tools can be improved upon or an entirely new approach is required.

4.5.3.5. Nature-based human development: 'Doing better', not just 'do no harm'

The principle of precaution has been showcased throughout this report as a key element in governing the intertwined challenges currently facing

humanity. Promoting peace and security in conjunction with protecting and restoring the planet's biosphere must extend beyond merely avoiding harm. Rather, humanity needs to strive towards 'nature-based human development'—a concept, introduced in the 2020 UNDP Human Development Report, that simultaneously integrates pro-biosphere *and* pro-anthroposphere endeavours.[221] Described as a 'circular approach', it involves: (*a*) equity (bottom-up, empower IPLCs, reduce risks); (*b*) innovation (new forms of production, interaction between green and grey infrastructure, supporting new green economy); and (*c*) stewardship (responsible use of resources, protection of nature, support regeneration of nature).

Compared to just striving to preserve nature while avoiding harm to affected communities, actively engaging traditional inhabitant communities (through building human capacity and empowering inhabitants of (designated) protected areas) has multiple benefits, including the potential for generating development gains on the one hand and ecosystem co-benefits on the other, while simultaneously promoting the preservation of traditional cultures and granting Indigenous communities adequate rights over their land and livelihoods. The concept could be termed *prudently synergic governance*—striving to promote positive action by avoiding downsides ('do no harm') while at the same time seeking synergies and reaping co-benefits ('doing better').

4.5.3.6. Embracing ethical and moral imperatives

Nature-based solutions (NBS)—low-tech methods that bank on nature's self-healing mechanisms—have been gaining traction with authorities, the private sector and the broader public as a simplified approach of addressing the planetary climate and environmental emergency. Although obvious synergies exist (e.g. containing atmospheric carbon in biomass while boosting ecosystem restoration), two major pitfalls loom. First, since natural processes require more land than technical processes, NBS—which have become increasingly popular in the West—are increasingly focused on the Global South. Second, seeking to nurture large-scale close-to-nature areas as a means of solving humanity's problems risks reviving the colonial notion of 'intact nature' as a wild, uninhabited space. As part 3 of this report has shown, this fails to acknowledge that most of the world's ecosystem hotspots are inhabited, and have been sustainably managed, by IPLCs for centuries. Moreover, the conception of local populations 'distorting' nature's way has historically led to violations of land (use) rights and direct security implications.

Fortunately, such attitudes are changing rapidly. Modern ecosystem conservation and restoration initiatives, such as the post-2020 global biodiversity framework outlined earlier, have conceptually embraced IPLCs as an integral element of any successful conservation strategy.[222] The IUCN defines NBS as 'actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human wellbeing and biodiversity benefits'.[223]

Welcome as this development is for fostering peace and diminishing the security risks faced by those who are least responsible yet most affected by the environment and climate crisis, a number of ethical questions arise. For instance, what legitimizes the so-called industrialized world expectation that IPLCs will (continue to) be the stewards of the Earth's natural capital? Moreover, is it morally justifiable to assume the planet's natural habitats and their traditional inhabitants can and will counterbalance the industrialized world's excesses (emissions, pollution, land degradation)?

Acknowledging that IPLCs are the best defenders and stewards of valuable forests (and other ecosystems) implicitly suggests that Indigenous communities bear the responsibility of keeping these ecosystems intact.[224] Thus, in order to secure the protection, conservation or even restoration of ecosystems, it is seen as increasingly important to empower and financially support local communities. While this may seem logical and even legitimate, questions such as whether and how such (monetary) support may lead to unforeseen consequences, and whether it should therefore be linked to conditionalities (i.e. quasi-contracting Indigenous peoples to maintain their traditional and rightfully possessed lands) are inevitable.

Inherent within the above is the potential to undermine peace and security. Even if NBS are understood as 'ways of working with nature that are underpinned by biodiversity and led by local communities',[225] there remains a need to develop and adhere to criteria, principles and approaches grounded in human rights and oriented towards ecosystem stewardship, restoration and conservation best practices. Maintaining an environment of peace demands going beyond formal ethical protocols aimed at protecting participants, researchers and conservation research integrity.[226]

4.5.3.7. Environmental peacebuilding

Environmental peacebuilding emerged as an approach over two decades ago in recognition of the need to expand understanding beyond viewing the environment as merely a catalyst for conflict.[227] It 'comprises the multiple approaches and pathways by which the management of environmental issues is integrated with and can support conflict prevention, mitigation, resolution, and recovery'.[228] Recent examples include the integration of environmental provisions in Peace Agreements especially in contexts where environmental degradation underlaid conflicts, as with the 2020 Juba Peace Agreement in Sudan,[229] and the greening of post conflict reconstruction and development (PCRD) initiatives, as in the Sahel (see 4.5.3.8). Given that ecosystems extend beyond arbitrarily defined political boundaries, these issues, like climate change, are collective problems.[230] Environmental peacebuilding is not a simple enterprise and success can be elusive if interventions ignore existing socio-political tensions, exclude groups or hide other interests.[231] Even so, the interdependence of states and communities based on shared environmental resources necessitates long-term iterated interactions. These interactions offer an opportunity for building habits of cooperation, which in turn can build

trust and confidence that 'spillover' into other relational dimensions.[232] Thus, trust building between communities, with a clear focus on improving both people's lives and the environment, provides an avenue for wider gains.[233]

EcoPeace Middle East is a well-known NGO advancing environmental peacebuilding through collaboration around a shared environment. Israelis, Jordanians and Palestinians jointly run the organization and its range of water, conservation, energy and environmental education programmes.[234] Water quality[235] and quantity[236] challenges in the shared Jordan River and groundwater aquifers provide opportunities for technical and community cooperation based on a shared interest in clean and accessible water. Amid wider political tensions, Good Water Neighbours partnerships work to reduce conflict between neighbouring communities.[237] While these local confidence-building efforts cannot claim to solve the larger conflicts plaguing the region, EcoPeace's international cooperation over shared environmental resources nonetheless offers a powerful model for the active engagement of civil society and public officials at the local, national and international level. Working towards 'peace dividends', as well as ecological and health objectives, has been a mainstay of the approach. Cooperative approaches outlined in EcoPeace's 2020 'A Green Blue Deal for the Middle East' came to fruition in the November 2021 agreement between Israel and Jordan to exchange solar-generated energy from Jordan (in partnership with the United Arab Emirates) for desalinated water from Israel.[238]

4.5.3.8. Greening the Sahel and Sahara region

The Sahel region—where most people face multidimensional poverty; poor health, education and standards of living; and an unforgiving natural environment[239]—presents an example of environmental peacebuilding efforts on a much larger scale. The livelihoods of local populations are highly dependent on subsistence agriculture, which is extremely vulnerable to environmental degradation.[240] Part 2 of this report has already highlighted the insecurity pervading the region—this section, by contrast, outlines a resilience and peacebuilding project aimed at addressing underlying stressors. The Great Green Wall (GGW)[241] is a pan-African cooperation project that extends from the West African coast to the Horn of Africa (see figure 4.4).[242]

The initiative has the ambitious goal of (re-)greening 780 million hectares of land (with 100 million hectares of this completed by 2030) and places biodiversity at the centre of efforts to 'maximise ecological functions and therefore build better resilience'.[243] The project includes participation from international organizations, international finance institutions, regional bodies (the AU), national governments, and local businesses and communities.[244]

Despite slower-than-hoped-for progress (due in part to violent conflict), the UN Convention to Combat Desertification reported a number of achievements as of 2021. Nearly 18 per cent of the GGW has been completed—the equivalent of over 20 million trees planted—providing $90 million in income generation for local communities.[245] Moreover,

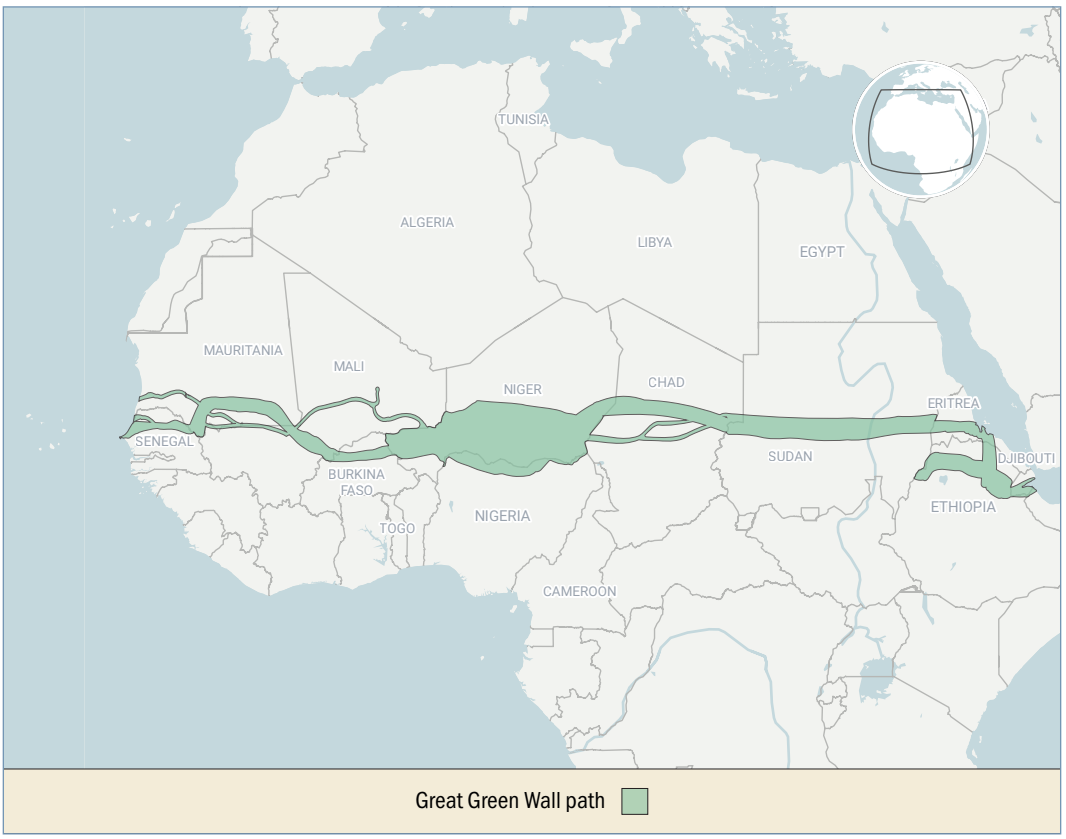

Figure 4.4. Map of the Great Green Wall

GGW = Great Green Wall; BRICKS = Building Resilience Through Innovation, Communication and Knowledge Services; FLEUVE = Front Local Environnemental pour une Union VertE (Local Environmental Coalition for a Green Union).

Source: Goffner, D., Sinare, H. and Gordon, L. J., 'The Great Green Wall for the Sahara and the Sahel Initiative as an opportunity to enhance resilience in Sahelian landscapes and livelihoods', *Regional Environmental Change*, vol. 19, no. 5 (June 2019), figure 1.

over 10 million people have been trained in sustainable land and water management, enabling the progress made to be sustained.

Local women's organizations have been engaged in the project with a view to empowering women and fortifying household incomes. The project expects to improve soil quality in the region, thereby providing multiple benefits to agriculturalists. Restoration of the Sahel could result in diversified incomes from non-timber resources (such as honey), improved water quality, upgraded infrastructure and greater food security.[246]

Some peacebuilding actors, such as the Shalom Center for Conflict Resolution and Reconciliation, argue that the GGW offers a means of rebuilding trust among communities and institutions.[247] Demonstrating that all projects face challenges, however, critiques of the GGW point to the negative impacts of greening efforts on pastoralists and the poor, who have not necessarily derived the hoped-for benefits.[248]

There are a number of important lessons to consider when designing and implementing environmental peacebuilding efforts going forward, with six potential risks in particular to be guarded against:[249] (*a*) *depoliticization*—technical environmental solutions may fail to address the underlying inequalities, power dynamics or causes of conflict; (*b*) *displacement*—(land-

intense) environmental peacebuilding projects can lead to involuntary displacement or trigger migration, thereby undermining peacebuilding efforts; (*c*) *discrimination*—marginalized groups may be excluded on the basis of, for example, gender, race or class; (*d*) *deterioration* into conflict—interventions may fail to fully appreciate the complexities of a situation and so reignite conflict; (*e*) *delegitimization* of the state—if a state is (perceived to be) complicit in the above impacts, citizens may regard it as illegitimate and unable to provide critical services, a situation potentially exacerbated if NGOs or private sector interventions replace public services, leading to increased reliance on external funding; and (*f*) *degradation* of the environment—some peacebuilding activities encourage shared use of resources, which can lead to overexploitation and exacerbate environmental damage.

Such risks are also directly relevant to wider environment, development and peacebuilding concerns. Despite relatively few explicit or well-funded efforts, the approach of developing best practices derived from experience is gaining momentum.[250] The spike in attention and pledged funding for climate change adaptation in conflict-affected settings also suggests the increased levels of attention being paid to these mechanisms, despite the initial funding having almost entirely excluded fragile states.[251] This proactive combination of environment, peace and conflict goals provides a complex but worthy avenue for pursuing an environment of peace (see 'Environmental Interventions in Fragile and Conflict-Affected Situations: Lessons for Future Programming' in the annex).

4.5.3.9. Climate finance for sustaining peace

Given that climate change contributes to security risks, reducing GHGs (mitigation) and increasing resilience to climate change (adaptation) offers avenues for reducing these risks. International climate finance is an important means of supporting implementation of these climate actions. To support peace, however, it must: (*a*) be sufficient; (*b*) reach fragile and conflict-affected countries and regions; and (*c*) be both conflict sensitive and peace positive. Currently, international climate finance falls short on each of these three aspects.

Internationally mobilized climate finance is insufficient, especially for adaptation: At COP15 in Copenhagen, developed countries committed to providing $100 billion per year from 2020 onwards to support climate action in developing countries, balanced equally between mitigation and adaptation.[252] According to the Organisation for Economic Co-operation and Development (OECD), the actual volume that was mobilized in 2020 was $83.3 billion, of which around $30 billion went to adaptation.[253] Donor countries have, though, been criticized for over-reporting or overstating the adaptation finance components of their projects, for example marking entire project budgets as contributing to adaptation finance when in reality only small portions went to adaptation activities.[254] Given the limited success seen to date

in reducing GHG emissions, the need for adaptation finance will only become greater.[255]

Fragile and conflict-affected settings receive only a little fraction of international finance: To contribute to peace, climate finance should be allocated to climate-vulnerable and conflict-affected countries. Although mitigating further climate change is important, these countries are already bearing the brunt of climate change and need to strengthen their local adaptive capacity in order to prevent further marginalization and poverty. These are also the settings where climate change is most likely to create new or aggravate existing tensions. Based on an analysis of $14 billion implemented across all UN Framework Convention on Climate Change-related climate funds[256] during the period 2014–21, UNDP found that extremely fragile states received $2.1 per person, compared to $10.8 in fragile states and $161.7 in non-fragile states.[257] In fact, evidence demonstrates that the more conflict-affected or fragile a country is, the less likely it is to receive climate adaptation funding.[258]

Various obstacles have been identified that can explain the limited international climate finance flows to fragile and conflict-affected countries. First, investors tend to avoid fragile and conflict-affected regions due to the greater chance of government breakdown, physical violence and asset loss.[259] Second, governments of fragile and conflict-affected states often have limited capacity to tackle the administrative requirements needed to apply for international climate funds, especially when the application language—often English—differs from their own.[260] The minimum data requirements needed to apply for multilateral climate funds such as the GEF and Green Climate Fund are frequently inaccessible and incomplete in conflict-affected countries,[261] with the presence of armed groups increasing the difficulty of data collection. In Mali, for example, armed groups have obstructed the participatory and gender assessments required for most funding streams.[262] Moreover, the technicalities of funding proposals require expertise on climate change and adaptation that may not be available in these countries.[263]

Little internationally financed climate adaptation actively seeks to reduce conflict risks and build sustainable peace: Climate finance in conflict-affected countries tends to be focused in more stable and peaceful areas outside of conflict zones.[264] In terms of project documents, conflict-sensitivity is often only explicitly addressed in project risk-management plans—that is, back-up plans in case conflict occurs, rather than project activities that may reduce these risks preventatively.[265] Climate finance flows also tend to avoid or are unable to reach areas controlled by armed groups, meaning vulnerable populations are overlooked.[266] In Somalia, for example, around 900 000 people live in rural areas under the control of the armed group al-Shabab, and so are beyond the reach of humanitarian assistance.[267]

This conflict-avoidance tendency in climate finance can be traced back to several factors. As mentioned above, one explanation is risk-avoidance by financers who prefer stable areas with a higher chance of effective project

implementation.[268] Moreover, few funders dedicate specific provisions in their financed projects to peace or peace promotion. Currently, only the GEF appears to ask that project proposals give explicit consideration to how a project will contribute to environmental security as part of broader human security.[269] In addition, conflict-affected regions may suffer from a lack of government control, hampering implementation of adaptation projects or increasing the risk of projects being destroyed by armed groups.[270] Finally, there may simply be a lack of understanding as to how climate change impacts security risks, and how climate adaptation can contribute to reducing these risks and promoting peace.

Which way forward? As well as urging donors to deliver on their committed finance targets, a number of suggestions have been put forward regarding how the specific obstacles mentioned above can be overcome. For example, donors could explore different means of facilitating access for fragile and conflict-affected states.[271] Moreover, funds could cooperate in setting up joint trainings to increase capacity on climate–security links, as well as develop joint analysis methods to explore how social and conflict dynamics interact with climate change and adaptation projects.[272]

In conclusion, the large volumes of committed international climate finance provide important opportunities to reduce conflict risks and promote peace. This is contingent, however, on the funds being mobilized and made available to fragile and conflict-affected countries; as well as actively directed towards increasing peace and addressing known drivers of conflict. Possible steps forward include the simplification of fund application procedures; increased knowledge and capacity on how climate change and security are inter-related; and fund-side incentives to incorporate these aspects into climate financed projects.

Without prompt and concerted action, policies aimed at addressing the current problem will be ineffective. A greater emphasis on achieving a common vision and shared responsibilities among all stakeholders is needed. In this regard, the Sustaining Peace Agenda emphasizes that ‘sustaining peace is a shared task and responsibility that needs to be fulfilled by the government and all other national stakeholders, and should flow through all three pillars of the United Nations’ engagement at all stages of conflict, and in all its dimensions, and needs sustained international attention and assistance’.[273] As such, the next section calls for collaborative action and explores options for mobilizing collective will and building synergies between conventional and non-conventional stakeholders. It also highlights the potential roles of women, youth and Indigenous peoples as torchbearers for a just and equitable green transition.

4.6. Towards collective action

Comparative data makes evident the degrading environment’s adverse global and transboundary impacts on peace and security, resulting in—among other

outcomes—armed conflicts, food insecurity, enforced migration and health risks. Given this, any effective response to such complex interconnected risks demands effective, inclusive policy responses negotiated and implemented at all levels.

4.6.1. Mobilizing collective will

Despite the dramatic surge in environmental pressures since the 1972 Stockholm Conference on the Human Environment, geopolitical interests and weak cooperation have continued to stall environment-related policy reflections and concerted action. Viable solutions to environmental damage are fraught with contention, with, for example, the geopolitical implications of transitioning to renewable energy receiving an uptick in attention following Russia's invasion of Ukraine in February 2022. While on the one hand this offers a way forward when it comes to reaching environmental sustainability, on the other it is intertwined with peace and security decisions that may delay or hasten decision making on a green transition.[274]

Current environment-related human security risks can only be solved by pursuing common ground, not competition or conflict. In light of criticisms raised regarding the difficulty of creating coherent global systems appropriate for all contexts, building on the momentum of regional pathways such as ASEAN, the EU, the Caribbean Community (CARICOM), the Organization of American States and the AU appears a more viable path. Given that these regions already have climate change frameworks with established security dimensions, work could be undertaken to broaden their scopes and embed other aspects of environmental degradation. Moreover, given the shared histories and geographies at play, risks are more likely to be similar at a regional level compared to the global level.

For instance, South–South cooperation—a broad collaboration framework among Global South countries that straddles political, economic, social, cultural, environmental and technical domains—has proven to be an important developmental strategy,[275] in several cases supporting ongoing strides to achieving the SDGs. Here, examples include knowledge exchanges between Kenya and Uganda on using natural capital and ecosystem services to enhance agricultural productivity and reduce hunger (SDG 15); and Indonesia's political support to Afghanistan aimed at promoting sustained peace through tolerance, pluralism and democracy (SDG 16).[276] Thus, reinforcing South–South cooperation involves strengthening resources for the exchange of knowledge, skills and expertise.[277]

In youth consultations conducted by the Environment of Peace initiative, participants emphasized how climate- and peace-related work brings new opportunities for strategic partnerships and ways of interacting between the Global North and Global South, including transferring funding from the Global North to communities in the Global South. Moreover, participants affirmed that countries with access to newer technologies have a moral obligation

to share that knowledge, thereby materially acknowledging the asymmetric responsibilities of climate change between the Global North and South. Another option would be for the Global North to contribute support and funding for South–South cooperation.

The impacts of environmental degradation are distributed unevenly, based on intersectional risks. The question of how to mobilize 'big (geopolitical) actors' for the benefit of marginalized groups is a challenge. Nonetheless, mobilizing private sector financing for development programmes and placing external pressure on governments through global frameworks are key ways forward. Multiple approaches have been explored when it comes to generating the buy-in of 'big actors' and emphasizing the urgency of action, including the legal agreement on plastic pollution adopted at the UN Environmental Assembly in Nairobi in March 2022,[278] and the Human Rights Council resolution on the right to a healthy environment in October 2021.

4.6.2. Building synergies with conventional and non-conventional actors

As has been highlighted in this report, the scale and scope of current and emerging risks far exceed the capacity of any single actor. As such, it is time for conventional stakeholders, such as international/regional organizations and governments, to unite with other actors (e.g. cities, media, supply chains management organizations, multinational corporations, private financial institutions) in pursuit of the collective goals of an environment of peace. Synergies have already been built, both among non-conventional actors and conventional actors, with their successes spotlighting the importance of multiplying such collaborative efforts in the face of a global crisis.

C40 Cities provides an example of successful international collaboration between non-conventional stakeholders.[279] Cities and local governments have become leaders in climate emergency declarations, with C40—a network of the mayors of 97 world-leading cities—at the forefront of the climate conversation for over 15 years. Knowledge gained through implementing national and regional projects that address a range of cross-cutting climate issues—from water to energy to transportation and food systems—can be shared between cities and countries (see 'How Cities Are Responding to the Climate Crisis' in the annex).[280] The Danish DK2020 project showcases the potential of C40 Cities—inspired by C40's Deadline 2020 project, it sets a global framework for how cities and municipalities can help achieve the Paris Agreement objectives. A total of 94 Danish municipalities have joined since the project piloted in 2019. Information on how the project is structured has since been shared with mayors around the world, with the City of Montreal now considering how the DK2020 model can be applied in regard to the city's net-zero goals. Not only is the DK2020 project improving environmental policies locally, it is helping build trust between local leaders during a time of crisis.

BOX 4.6. BBC MEDIA ACTION BANGLADESH*

Qualitative survey research and in-person interviews in Bangladesh show that most people are aware the climate is changing. Despite this, many Bangladeshis claim they lack the information and resources necessary to cope with increasing climate variability. BBC Media Action identified two key factors influencing collective action intended to address climate hazards: (*a*) the degree to which people felt at risk regarding the impacts of extreme weather; and (*b*) the degree to which people felt connected to their communities.

The Amrai Pari ('Together We Can Do It') project, implemented by BBC Media Action in 2014–16, aimed to improve Bangladeshis' resilience to natural hazards and economic stresses arising from climate impacts. Taking the form of a reality TV series, the project travelled across the country explaining practical resilience actions and filming communities as they worked with local government to implement resilience-related projects they had identified themselves, such as strengthening storm defences in fishing areas. In an attempt to resonate with the target audiences, Amrai Pari engaged with a range of communities in both rural areas and urban locations, as well as women and marginalized socio-economic groups.

Over the course of the three-year project, Amrai Pari programming reached 22.5 million people in Bangladesh. Follow-up research found regular viewers were significantly more likely to take action in their communities than non-viewers. Through raising awareness of climate risks and increasing community knowledge and agency to realize collective benefits, the project was successful in disseminating resiliency efforts.

* For the full case study, see 'BBC Media Action: *Amrai Pari* Project, Bangladesh 2014–16' in the annex.

Other collaborative initiatives have also demonstrated success, including the Global Resilience Partnership's (GRP) 'Seeds of Resilience for Peace and Stability', which brings together some 60 non-governmental, development, humanitarian and academic organizations to generate knowledge and share policy experiences, with the aim of identifying and scaling up effective on-the-ground innovations. Through a collaborative process of knowledge co-production with several GRP participants, the Seeds project has so far analysed 13 promising local initiatives in eight countries. Several of these highlight how a strong focus on the sustainable, collaborative use of natural resources can offer an effective entry-point to conflict resolution and contribute to transformative peacebuilding change (see 'The Global Resilience Partnership: "Seeds of Resilience for Peace and Stability"' in the annex).

Meanwhile, BBC Media Action's Analysis for the Environment of Peace initiative shows that people living in conflict-affected countries, despite being more likely to discuss environment-related issues, are less likely to agree that they can work with others to resolve such issues, pointing to lower social cohesion. This disparity between action and discussion in 'conflict' countries is crucial—the problem is not always lack of discussion or awareness of a problem, but rather an inability to take group participatory action. Qualitative research shows that although people feel able to discuss relevant issues with those around them, such exchanges are rarely conducted in a formalized manner, with community members lacking any platform to ask questions of experts, seek support or hold government officials to account. Further analysis by BBC Media Action exploring the drivers and barriers to conflict in

Bangladesh (see box 4.6) shows that increased discussion and participation corresponds with individuals having higher levels of trust in institutions, perceived freedom and perceived ability to impact environmental issues. This indicates that social cohesion and trust encourage feelings of agency and community confidence that meaningful action can be taken.[281]

Understanding the role and influence of financial institutions, multinational corporations, civil society organizations, companies and community leaders in a given situation is therefore crucial to building sustained models for cooperation, and in turn peace and security. Consider, for example, that 71 per cent of global emissions are produced by just 100 companies, which remain unwilling to take decisive responsibility for their actions.[282] This has created huge distrust, reducing people's motivation to act due to a perception that their actions won't make a difference.[283] Through agreements between government and local community leaders, including corporate social responsibility agreements, mutually beneficial synergies can be built. Such action must extend beyond election cycles and preferably be grounded in law.

4.6.3. The defining role of women, youth and Indigenous peoples

Before answering any questions regarding the mechanisms needed for collective action, a set of norms must be established. Here, the word 'collective' is key—currently there is an imbalance between those facing the impacts of climate change and those influencing how hard these impacts will be felt in future. This unequal distribution of climate impact and power spans states, communities, race, gender and age. Some communities suffer unequal access to and ownership of natural resources on a systematic basis. Moreover, these groups tend to be excluded from decision- and policy-making institutions, making it difficult to achieve any change in their favour. Intersectionality is therefore a key conversational lens if political mobilization is to result in a just and peaceful outcome. Indigenous peoples, women and youth in particular have exceptional stakes in environmental change and the world's adaptation to it. The trends are clear when it comes to their unique role in matters of both the environment and peace, as well as where the two intersect. As such, this section focuses in on these three crucial demographic groups.

4.6.3.1. Women

Despite constituting over half the world's population, women have historically been at the periphery of decision making. Women and girls are differentially impacted by climate and environmental changes, with the power exclusion they face increasing their vulnerability.

Investing in the nexus of women, peace and environment has already yielded results, with the green energy industry holding considerable potential for women's involvement. In Yemen, for example, a project supported by

the UNDP and EU was set up in 2019 to build a solar microgrid and help 10 women run it, thereby providing affordable energy to a nearby community living in a war zone. The success of this pilot project has led to 163 solar microgrids being established in rural Yemen. These have provided green energy and increased opportunities for women, in the process creating widespread autonomy across traditionally marginalized groups.[284]

Another example is how women in the Pacific Islands have recognized climate change mitigation as preventive work aimed at building peace.[285] The Shifting the Power Coalition was formed after cyclones hit Vanuatu and Fiji in 2015 and 2016, with civil society members advocating for new approaches to reducing and managing disaster risks—with women at the helm. Since 2019, 6000 women from local clubs and networks have undertaken training on women's leadership and disability inclusion in humanitarian action,[286] transforming systems in order to shift power towards local women's leadership and innovation.[287] Here, women peacebuilders are harnessing their unique cooperation to achieve a variety of goals in the nexus between climate and peace.

Despite numerous success stories, women and girls still face a variety of challenges. These are often rooted in pre-conceived gender roles—for instance, although women represent around 43 per cent of the global workforce within the agricultural sector, they have disproportionately low access to resources, such as land tenure systems.[288] In conflict-ridden areas women typically rely on activities affected by climate change for their livelihoods, and are frequently among the first to notice the early signs of environmental damage on land, water and forest resources. This is a vital skill that can be horned through capacity building.[289] Thus, investing in women's agricultural productivity is crucial to achieving the interconnected aims of global frameworks such as the 2030 Agenda, the Paris Agreement and the Sustaining Peace Agenda.

Clearly defined frameworks and tools are a crucial part of creating sustained development. The UN Minimum Set of Gender Indicators,[290] for example, created to support women, include no measures on climate or environment—a shortcoming that must be addressed. Adequate data is required in order to fully grasp the scale and scope of the burden borne by women in relation to environmental change, as well as the potential they hold to effect change.

4.6.3.2. Youth

Today's youth have contributed relatively little to environmental degradation. Nonetheless, they are not only suffering its impacts now but will continue to do so for many years to come. In keeping with the 'responsibility to prevent damage and preserve the environment' principle, there is therefore a moral imperative to respect this asymmetrical distribution of responsibility and likely suffering.[291] Despite youth being an ever more integrated group of international climate conference participants,[292] their meaningful impact is limited. This is especially concerning given that the younger generation is now bigger than

ever—almost half the world's population is under 30, with the majority living in countries confronted by major environmental changes.[293]

In recent years, however, youth-led advocacy has witnessed a surge in political capital and active participation in policy spaces. Since 2015 young people have been at the forefront of driving legal processes aimed at recognizing the right to live in a sustainable environment—from Australia to Europe to both South and North America.[294] Often, these claims are promoted as a means of achieving a just and peaceful society, where human rights are protected.

As such, youth must be included in not only consultation processes but implementation. Despite the active involvement of youth in the environmental policy space, more needs to be done to ensure their inclusive participation. If movements—and the mobilization of political will—is to flourish, freedom of speech and functioning justice systems are a prerequisite.[295] As shown in the case study on environmental defenders in part 2 of this report, protecting the planet requires that the right to protect the planet is itself protected.

4.6.3.3. Indigenous peoples

In stark contrast to urban civilizations, which often separate nature and human life, adapting to the surrounding environment is at the heart of many native cultures. Acknowledging that nature and human society are intertwined is crucial for adaptation to environmental change.[296]

Private and public actors wishing to make claims on land important to Indigenous communities must consult with local inhabitants, especially those affected by longer-term environmental impacts. Such processes can be made more thorough, sustainable and inclusive through the use of communication platforms and technologies.[297] The Covid-19 pandemic has shown that technology—if the appropriate resources are available—can enable cooperation in ways that bypass geographical distance.[298]

The academic literature analysed and consultative processes conducted within the Environment of Peace initiative suggest that Indigenous groups across the board emphasize the need for de jure and de facto influence over decisions taken about their lives.[299] Another element of this is retaining the right to continue living life in a traditional way. In light of a changing climate and continued environmental degradation, access to financial resources can be crucial to maintaining and strengthening a community's local capacities.[300] However, such funding and its reporting must be flexible and rooted in trust, with communities having full decision-making power.[301] Moreover, there cannot be an expectation that communities will adapt to the administrative burdens that work in urban settings.[302]

In this context, harnessing technology to capture data efficiency could play a pivotal role in making funding more effective, with more automated methods used to create data repositories, dashboards and reports.[303] Meanwhile, human resources could can be invested more sensitively—such as into cooperation, the maintenance of Indigenous traditions, and environmental

peacebuilding. All this would, of course, need to be programmed with locally anchored factors taken into consideration.

There is growing consensus that policymakers and investors must, when designing and implementing projects that impact ecosystems, engage the wisdom of Indigenous communities and local knowledge systems. Enabling synergies between non-conventional actors and mobilizing collective action requires transparency. It is vital for accountability that information is actively made available to all who need it—a point repeatedly underlined by young experts in consultations conducted by the Environment of Peace initiative. Governance in the 21st century must be pursued in a manner that nurtures inclusivity, justice and peace, even if this entails surrendering privilege and old habits.

4.7. Conclusions and recommendations

4.7.1. Principles for an environment of peace

As this report has demonstrated, a wide array of policy, institutional, legal and normative interventions and discussions exist in relation to the environment, climate, peace and security. Given this multifaceted context, the following principles and recommendations have been developed in order to create, manage and sustain an environment of peace. Whereas the principles set out the high-level requirements and mental outlook needed by an environment of peace needs, the recommendations set out concrete mechanisms for achieving these goals.

1 **Think fast, think ahead, act quickly**
Establishing an environment of peace requires far-sighted vision and proactive, evidence-based policymaking capable of recognizing the synergies between environment, development and peace. It also demands swift short-term action, including to halt and reverse environmental degradation.

2 **Cooperate to survive and thrive**
In the absence of international cooperation, no one government can secure its citizens' wellbeing in the face of the escalating global security and environmental crises. The new era of evolving risk demands modes of cooperation that reach beyond like-minded alliances.

3 **Change is inevitable and unpredictable, so be prepared to adapt**
The escalating crises will bring a steady stream of new risks and challenges. Static assessments and policies are already proving inadequate, meaning horizon-scanning, far-sighted

analysis and adaptive implementation will be needed if societies are to keep ahead of the growing risks.

4 **A just and peaceful transition will succeed**
To be successful, transitions need to be both just *and* peaceful. Potential risks must therefore be assessed, managed and mitigated in all measures taken to address environmental degradation and security issues.

5 **By everyone, for everyone**
Inclusive decision-making processes at every level, from intergovernmental organizations down to individual projects, will likely produce fairer and more effective decisions. Those most involved in and affected by actions should be consulted to the fullest extent possible, and have their interests reflected in outcomes.

4.7.2. Recommendations for an environment of peace

1 **Common problem, common solutions**
Governments, decision makers and responsible organizations in all sectors of society should ensure that measures aimed at addressing environmental problems also promote peace, and that measures aimed at addressing security issues also promote environmental integrity. Measures need to be iterative and adaptive, with responses adjusted to generate the optimal peace and environmental outcome. They also need to be made urgently.

- There is a central role for the UN in joining up approaches to the twin crises. Peace and security bodies such as the Security Council and Peacebuilding Commission should integrate climate and environmental-related security risks into their work, while environment-centred entities such as the Rio conventions should consider the security consequences of their decisions. Entities joining the security and environment fields, such as the CSM, should be strengthened.
- There are a number of real-world examples of successful initiatives enhancing both security and environmental outcomes on which to draw, as well as real-world examples of failure that can offer lessons. Governments should invest in open and transparent platforms to share best practice and information on projects that have had unintended negative consequences.

- Governments should increase support for international and regional cooperation—particularly South–South cooperation—as this offers a means of enhancing development, environmental sustainability and human security.

2 **Preparation**

Countries, as well as sub-national bodies and communities, should reduce their vulnerability to environmental and conflict shocks/setbacks by investing in preparedness, mitigation and adaptation. Preparedness implies building resilience and adaptive capacity adequate for a new era of risk in which the full range of impacts is not foreseeable. It also involves investing in capacity to identify both progressive changes and the warning signs of rapid-onset events

- Every government should undertake a strategic review of how climate change and wider environmental decline will affect risks to security, and assess resilience accordingly. The international community should provide financial and technical support where necessary.
- Transboundary agreements on managing resources such as water, fisheries and forests should be expanded and enhanced with a view to encompassing all instances of resource-sharing that have the potential to generate insecurity and conflict risk. Existing and new transboundary agreements should review their processes and operations in light of the evolving risk landscape and ensure they are fit for purpose.
- Both conflict and environmental shock early warning systems can provide useful information in advance of potentially damaging events. Environmental stressors should be routinely incorporated into conflict early warning systems and coupled with early action.

3 **Finance**

There is no shortage of finance for building peace and environmental integrity—rather, its provision and allocation are the critical issues. Governments, development banks and other financial institutions should ensure that both the public money they provide and the private money they regulate are spent in ways that promote peace and environmental integrity.

Fully meet funding commitments

- OECD members and other prosperous countries should meet without delay their international funding obligations on climate change, biodiversity, health and other environmental issues affecting security.

Switch spending to support peace and environmental integrity

- Military spending is at an all-time high. Governments should reassess military expenditure against the impending security risks of the global environmental crisis and shift investment into resilience building, prevention and environmental action.
- Subsidies that exacerbate insecurity and conflict by damaging the environment amount to trillions of dollars per year. Governments should re-examine the subsidies provided for activities such as fossil fuel extraction and consumption, destructive fishing and deforestation, and deliver on commitments to end them.

Ensure funding is just and conflict sensitive

- International funding mechanisms that address environmental decline should disburse funds in ways that as a minimum do not damage security and peace, and ideally enhance them. Implementing and oversight bodies for such funds must ensure that safeguarding mechanisms are designed and implemented inclusively, with human rights and the promotion of peace kept front of mind.
- Differential access to funding can exacerbate inequalities. Processes should therefore be as inclusive as possible. Donor countries and multilateral funding institutions should reduce barriers that restrict marginalized groups—particularly women—and the poorest countries gaining access. In terms of international finance, priority should be given to the societies that need it most, including the most fragile states and communities.
- In order to avoid generating peace and security risks, the growing private sector funding for offsetting emissions via NBS must operate according to the highest internationally agreed social and ecological standards. Governments have a duty to establish and implement appropriate regulatory oversight.

4 **Delivering a just, peaceful and successful transition**
Governments, multilateral organizations and corporations should ensure the pro-environment measures they undertake do not create environmental or security risks elsewhere in the world. Entities in the Global North should be particularly attentive to the risk of creating unwanted consequences borne by communities in the Global South.

- Public and private entities embarking on measures aimed at addressing environmental degradation should assess potential negative social impacts—including increasing the risk of conflict or community tension—before a decision is taken to commence. Risk assessment should continue throughout the lifetime of an initiative.
- Climate change adaptation should identify and address the root causes of vulnerabilities, rather than focusing narrowly on climate change impacts.
- The rapidly increasing demand for critical minerals and other components of zero-carbon technology poses conflict and insecurity risks. Governments and the private sector should cooperatively identify ways of reducing these risks at every stage in the product cycle, from extraction of raw materials to manufacture and installation through to decommissioning and waste disposal.

4.7.3. Conclusions

This fourth and final part of the Environment of Peace report has charted the pathways available for enabling an environment of peace in a world confronted by interconnected and mutually reinforcing environmental degradation and human insecurity. It has built on findings that show growing environmental pressures are interacting with existing social, political and economic systems to engender complex security challenges. Responding to this transformation requires a correspondingly fundamental reconceptualization of how humanity should seek to realize peace, security and development in this new world. Amid this context, any new security framework must emphasize that environmental considerations are not only central to human security, but crucial for the peaceful existence and collective survival of global societies.

Current efforts to resolve environmental problems are fraught with injustice and conflict risks. While valuable legal, policy and institutional frameworks for addressing environmental threats to peace do exist, they are for the most part fragmented and cumbersome. Moreover, geopolitical interests and weak international cooperation continue to impede the bridging of insecurity gaps created by environmental degradation. Both the

environment and peace are first and foremost human rights, as recognized and codified in human rights instruments. A healthy environment represents an instrument and context for sustainable peace. Thus, there can be no sustainable peace in an unsustainable environment. Put another way, if we are to achieve an equitable environment for just and peaceful transitions into the Anthropocene era, then the tools and instruments used must also be just and peaceful.

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