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Navigating a Global Crisis: Climate Change and NATO

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The NATO Association of Canada

Navigating a Global Crisis: Climate Change and NATO

The **NATO** Association of Canada Association | Association Canadienne pour L'**OTAN**

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Introduction

Christopher Maternowski

Notable institutions, such as the United Nations and the European Union, have declared that climate change endangers international security.[1] The North Atlantic Treaty Organization (NATO) shares these concerns and has expressed a desire to influence the global movement to meet this threat.[2] However, the suitability and practicability of this objective have elicited conflicting opinions. For sceptics, an alliance predicated on safeguarding its members from the hostile actions of other states lacks a compelling rationale for mobilizing against climate change.[3] Others argue that NATO, which has a history of facilitating cooperation on environmental issues and through scientific venues, can and must make institutional space for climate change in the interests of global security and operational efficiency.[4] But the amount of attention or effort that NATO should devote to climate change varies depending on the observer.[5] Furthermore, pundits

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[1] "The Climate Crisis - A Race We Can Win," United Nations, accessed November 19, 2022, https://www.un.org/en/un75/climate-crisis-race-we-can-win; Elena Lazarou and Linda Tothova, "Climate change considerations for EU security and defence policy," Briefing, European Parliamentary Research Service (EPRS), European Union, (June 2022), https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729467/EPRS_BRI(2022)729467_EN.pdf.

[2] See, for instance, remarks from Jens Stoltenberg in the Foreword, as well as the Executive Summary, *The Secretary General's Report: Climate Change & Security Impact Assessment* (Brussels: NATO HQ, 2022), 1, https://www.nato.int/nato_static_fl2014/assets/pdf/2022/6/pdf/280622-climate-impact-assessment.pdf.

[3] Lucía García Rico, *NATO and Climate Change: A Climatized Perspective on Security*, Project on Europe and the Transatlantic Relationship, (Cambridge, MA: Belfer Center for Science and International Affairs, Harvard Kennedy School, August 2022), 8, https://www.belfercenter.org/sites/default/files/files/publication/Belfer%20Nato_Climate%20Change_VF_1.pdf. Also noted in Tyler H. Lippert, *NATO, Climate Change, and International Security: A Risk Governance Approach* (Cham, Switzerland: Palgrave Macmillan, 2019), 2. For a representative argument, see Patrick T. Warren, "Strategic Concept: To Defend Everywhere Is to Defend Nowhere," Brookings, May 28, 2010, https://www.brookings.edu/blog/up-front/2010/05/28/natos-strategic-concept-to-defend-everywhere-is-to-defend-nowhere/.

[4] For proponents of this, see Katarina Kertysova, "Towards a Greener Alliance: NATO's Energy Efficiency and Mitigation Efforts," in *Decarbonized Defense: The Need for Clean Military Power in the Age of Climate Change*, Louise van Schaik et al. (International Military Council on Climate and Security, June 2022), 24-31, https://imccs.org/wp-content/uploads/2022/06/Decarbonized-Defense-World-Climate-and-Security-Report-2022-Vol.-I.pdf; Anum Farhan, Armida van Rij, and Signe Kossmann, "NATO must prioritize climate change as a security issue," Chatham House, June 27, 2022, https://www.chathamhouse.org/2022/06/nato-must-prioritize-climate-change-security-issue; Rico, *NATO and Climate Change;* Rickard Söder, "NATO in a climate of change," SIPRI, February 14, 2020, https://www.sipri.org/commentary/blog/2020/nato-climate-change; Amar Causevic, "Facing an Unpredictable Threat: Is NATO Ideally Placed to Manage Climate Change as a Non-Traditional Threat Multiplier?," *Connections: The Quarterly Journal* 16, no.2 (2017), https://doi.org/10.11610/Connections.16.2.04, 59-80; Sherri Goodman and Katarina Kertysova, "NATO: An unexpected driver of climate action?," *NATO Review*, February 1, 2022, https://www.nato.int/docu/review/articles/2022/02/01/nato-an-unexpected-driver-of-climate-action/index.html. For a deeper history, see Simone Turchetti, *Greening the Alliance: The Diplomacy of NATO's Science and Environmental Initiatives* (Chicago and London: The University of Chicago Press, 2019).

[5] For a sampling of opinions, see Kertysova, "Towards a Greener Alliance," 31; Goodman and Kertysova, "NATO"; Jamie Shea, "Foreword," in *Sustainable Peace & Security in a Changing Climate: Recommendations for NATO 2030*, ed. Ronald A. Klingham (Brussels and the Hague: Environment & Development Resource Center, April 30, 2021), 2, https://www.brusselsdialogue.net/ncwes; Rico, *NATO and Climate Change*; see Agneska Bloch and James Goldgeier, *Finding the Right Role for NATO in Addressing China and Climate Change*, (Washington, DC: The Brookings Institution, October 2021), 8, https://www.brookings.edu/wp-content/uploads/2021/10/FP_20211026_nato_china_climate_bloch_goldgeier.pdf; Dominik Jankowski and Julian Wieczorkiewicz, "Op-Ed Toward a 'Greener' NATO," *Berlin Policy Journal*, June 15, 2020, https://berlinpolicyjournal.com/op-ed-toward-a-greener-nato/.

have diverged on which of the strategies put forward— frameworks premised on specific theories or the invocation of Article 5, the North Atlantic Treaty's collective defence clause, for instance— should influence or guide NATO as the alliance navigates climate change.[6]

This volume wades into and complements, amplifies, and advances these debates by surveying climate change and its ramifications for global security, especially for the thirty-member strong (and growing) alliance. Indeed, while not necessarily their focus, NATO appears in each of the nine original contributions herein and provides the connective thread that binds seemingly disparate topics into a coherent discourse. Through these analyses, which in totality offer a *tour d'horizon* and appraisal of the security situation on a hotter Earth, the extensive, globe-spanning, and significant complexities that climate change presents NATO and other actors come into sharper focus.

Collectively, these nine articles illuminate and emphasize several points. The first involves the magnitude of the climate change threat and necessity for broad-based action. Increasingly, observers assert that climate change has emerged as a danger—or even paramount threat—to global security.[7]

This volume also stresses the centrality of multilateralism and especially intergovernmental institutions like NATO in minimizing the security dangers connected to climate change, a global and all-embracing phenomenon that does not respect lines on a map.[8] The essays here make plain that security issues linked to climate change can become geographically expansive. Thus, a climate-related episode outside of NATO's territorial boundaries and ostensibly far removed from member states can potentially have implications for them. Consequently, the international exchanges and transnational initiatives that multilateral institutions facilitate become critical in dealing with the universal nature of climate change and its effects. As one external observer comments, "success depends on everyone playing their full part," including NATO.[9]

Finally, these essays show that NATO's mandate has broadened to encompass "non-traditional threats" like climate change.[10] But these efforts have achieved mixed results. Although NATO has made undeniable and ever-greater strides to plan for climate-related contingencies, notably high-profile endeavours like the Climate Change and Security Centre of Excellence (COE) discussed here, these measures remain arguably incommensurate with the scope of the problem.[11]

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[6] On frameworks, see Rico, *NATO and Climate Change*, esp. 13-18; Lippert, *NATO, Climate Change, and International Security*. On Article 5, see Deborah Brosnan, "Climate change is a unifying threat — NATO should enact Article 5 to combat it," *The Hill*, July 27, 2021, https://thehill.com/opinion/energy-environment/565117-climate-change-is-a-unifying-threat-nato-should-enact-article-5-to/.

[7] On the degree of the threat, see Mark Nevitt, "Climate Change: Our Greatest National Security Threat?" *Just Security*, April 17, 2019, https://www.justsecurity.org/63673/climate-change-our-greatest-national-security-threat/; Elizabeth G. Boulton, "Climate Change Isn't a Threat Multiplier. It's the Main Threat," *Defense One*, July 2, 2022, https://www.defenseone.com/ideas/2022/07/climate-change-isnt-threat-multiplier-its-main-threat/368814/.

[8] Such characterizations of climate change remain commonplace. See, for instance, Kertysova, "Toward A Greener Alliance," 24; Rico, *NATO and Climate Change*, 11; Bloch and Goldgeier, *Finding the Right Role for NATO in Addressing China and Climate Change*, 13. For another global-looking overview of NATO and climate change, see Klingham, ed., *Sustainable Peace & Security in a Changing Climate*.

[9] Shea, "Foreword," 2. Goodman and Kertysova make the same point in "NATO."

[10] See, among others, Causevic, "Facing an Unpredictable Threat."

[11] For a counter argument, see Katarina Kertysova, "Perseverance amidst crisis: NATO's ambitious climate change and security agenda after Madrid," Commentary, The European Leadership Network (ELN), October 18, 2022, https://www.europeanleadershipnetwork.org/commentary/perseverance-amidst-crisis-natos-ambitious-climate-change-and-security-agenda-after-madrid/. On the COE, see also "NATO Climate Change and Security Centre of Excellence," Government of Canada, accessed December 8, 2022, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/nato-otan/centre-excellence.aspx?lang=eng.

However, there exists room for cautious optimism within this volume. The collection's essays suggest that the alliance and its member states and partner organizations can make an impact on this front—if they desire. After all, the alliance has demonstrated an uncanny aptitude for staying current and responsive to developing threats like climate change.[12] Importantly, these articles show that the possibility of enhanced NATO involvement on climate change holds potential for improved global security and would bring advantages for the alliance, notably readying the organization to deploy successfully within a security environment that a hotter planet increasingly and determinatively shapes.

The volume opens with a contribution from *Tom Middendorp*, who provides an overview and assessment of NATO's efforts to deal with climate change. He notes the threats that climate change represents to international security. At the same time, though, Middendorp strikes a sanguine tone, outlining the ways in which the security challenges of climate change provide an impetus for NATO to make institutional changes that will yield welcome and long-term benefits for the alliance, such as operational gains.

Erin Sikorsky also delves into the subject of NATO and climate change from an institutional standpoint, focusing on the uses of intelligence for the alliance amid rising temperatures. In particular, she explains its value for anticipating security challenges connected to climate change. Specifically, Sikorsky argues in favour of NATO making climate change a proper variable in intelligence forecasting and thus a serious object of analysis for the alliance.

Simon Dalby continues the discussion by examining one of NATO's more recent and high-profile initiatives in this field: the planned establishment of the Montreal-based COE. In so doing, he brings its host country, Canada, into the conversation, casting doubt on the adequacy of Ottawa and Brussels' climate change initiatives in the process. For Dalby, the COE, though perhaps a useful venue for spotlighting climate change, still skirts the real problem: an ongoing and planet-warming reliance on fossil fuels in Canada and other NATO countries. This not only creates a liability for them, but also contributes to current and future instability on a global scale.

Of course, in democracies like Canada, the attention that policymakers pay to issues like climate change often reflects the level of interest from voters. Thanks to the surge in extreme weather events and their heightened visibility through amplification in digital spaces, the indifference or out-of-sight, out-of-mind disposition toward climate change might be dissipating, argues *Justin Michael James Dell*. According to his analysis, NATO can leverage rising support for climate change mitigation initiatives to move more decisively on the issue. Pursuing this tactic would harmonize NATO's position with the bulk of public opinion while attenuating the security dangers of soaring temperatures.

Mariia Kobzeva considers the future of the "Green Arctic Regime" (GAR), which describes the overarching structure that has enabled circumpolar states to cooperate and strive for a greener future. Several developments, notably the Russian invasion of Ukraine and the imminent addition of two Arctic states (Sweden and Finland) to NATO, have introduced additional friction that run the risk of forever splintering the GAR and hindering its functionality, thereby rendering this system obsolete. While not focused on NATO, Kobzeva's essay has relevance for alliance members and commentators alike. As Kobzeva explains, the dissolution of the GAR would further polarize the Arctic, which has a NATO presence there through its regional member states, and subsequently worsen relations with Russia. It would also subvert a system that had already taken—and could undertake more—steps to minimize ecological and climate change impacts in the Arctic.

Well below the Arctic Circle, *Emma Hakala* investigates the interlinkages of climate change and security in the Western Balkans. Climate change and the developing sustainable transition in that

[12] Shea, "Foreword," 2.

area could strain and create upheaval in a locale where NATO and its member states, including regional members Albania, Montenegro, and North Macedonia, have played a critical role. Continued multilateral collaboration and engagement with NATO and these member states will remain vital in augmenting the region's future security prospects as the Earth warms.

The security challenges currently and potentially connected to climate change do not remain confined to the Global North. As *Ebimboere Seiyefa* explores, Sub-Saharan Africa is wrestling with the effects of climate change as well. Shifting weather patterns and attendant social and economic turmoil have—and will continue—to promote transnational crime in West Africa. Moreover, she shows, these regional impacts can affect members of the EU and NATO. For this reason, NATO assets have deployed against piracy in the past. Additional cooperation and expanded partnerships, including with the African Union, will prove imperative to reducing the security risks of climate change.

Climate change is no less of a threat in East Africa, which forms the focus of *Ayan Mahamoud's* essay. She details how climate change has wide-ranging effects, including precipitating economic hardship, particularly for pastoral communities, thus priming the ground for resource-based conflict. Cognizant of these challenges, intergovernmental organizations (IGOs) like the Intergovernmental Authority on Development (IGAD) have worked to moderate them. Moreover, like Seiyefa, Mahamoud regards IGO engagement, specifically between IGAD and NATO, which had a foray in the Horn of Africa through anti-piracy patrols, as advantageous to reducing the security dangers in East Africa tied to climate change.

The volume ends with *Ibrahim Al-Marashi* and *Amar Causevic*, who jointly sketch how climate change affects security in the Middle East and North Africa (MENA) region and why this matters for NATO. Proximate to Turkey, a NATO member, MENA faces significant climate-related challenges, such as desertification, that, along with structural problems, engender security risks—now and in the future. Al-Marashi and Causevic contend that NATO, which has increasingly noted and tried to attend to climate change, must take a firmer stand in this area of relevance to the alliance's mandate. Deepening engagement in the ever-important MENA on issues connected to climate change, which promises to grow in seriousness, presents an opportunity that NATO should pursue.

As this essay-by-essay overview reveals, NATO cannot treat climate change as a marginal or secondary concern. On the contrary, NATO needs to consider a bold cognitive and postural shift. NATO already recognizes climate change's capacity to affect "the traditional operating domains of maritime, land, air and space."[13] As Jun Nagashima argues, militaries, and a military alliance like NATO, could also give thought to applying the "domain of operations" designation—currently limited to air, land, maritime, space, and cyberspace—to climate change.[14] The last addition, the 2016 inclusion of cyberspace, which likewise lacks delineated geographic boundaries, empowered NATO to move against digital threats.[15] Similarly, a climate "domain" could help to put the alliance on the

[13] *Climate Change & Security Impact Assessment*, 5.

[14] Jun Nagashima, "Climate Change as an Operational Domain: Sustainable Military Review will begin after UN IPCC Report," The Sasakawa Peace Foundation, August 31 2021, https://www.spf.org/iina/en/articles/nagashima_08.html. On NATO's operational domains, see "Multi-Domain Operations Conference – What We Are Learning," NATO, Allied Command Transformation, April 8, 2022, https://www.act.nato.int/articles/multi-domains-operations-lessons-learned#:~:text=For%20this%2C%20NATO%20must%20therefore,%2C%20Maritime%2C%20Cyberspace%20and%20Space.

[15] On the cyber domain, see "NATO Recognises Cyberspace as a 'Domain of Operations' at Warsaw Summit," CCDCOE, accessed December 15, 2022, https://ccdcoe.org/incyder-articles/nato-recognises-cyberspace-as-a-domain-of-operations-at-warsaw-summit/; "Cyber defence," North Atlantic Treaty Organization, last modified March 23, 2022,

collaborative, forward-looking footing that navigating an intensifying crisis of global proportions merits. As this volume makes apparent, coming to grips with climate change and its effects on security will require swift, resolute, concerted, and expanded initiative from NATO, member states, partners, and like-minded institutions across the globe.[16] ■

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https://www.nato.int/cps/en/natohq/topics_78170.htm. On the comparison with cyber domains, see also Nagashima, "Climate Change as an Operational Domain."

[16] On the climate "domain" and collaborative dimensions, see Nagashima, "Climate Change as an Operational Domain." See also Goodman and Kertysova, "NATO," which also discusses "collective climate action" and the alliance. Similar sentiments also reflected in, among other sources, António Guterres, "Secretary-General's opening remarks at press conference on Pre-COP27," (speech, COP27, October 3, 2022), United Nations, https://www.un.org/sg/en/content/sg/speeches/2022-10-03/secretary-generals-opening-remarks-press-encounter-pre-cop27.

Security-proofing Climate Change: About NATO's Role and Opportunities

Tom Middendorp

Climate change triggers many kinds of disruptions; it weakens ecosystems, affects societies, burdens economies, and undermines the security of nations and communities. Until recently, the security implications of climate change hardly received any attention from international security organizations like NATO. However, that tide is changing and NATO is rapidly making progress with the launch of its Climate Security Plan.[1] Yet NATO still has a long way to go. Most member states have not yet incorporated this NATO plan into defence strategies or made commitments to achieve those strategies. It shows that the subject has been highly politicized and that the support within member states to address it is fragile.[2]

So, the big question is: How can we develop NATO's role in addressing climate change in such a way that it also helps NATO to be better prepared for future challenges? NATO should see that role as an opportunity to future-proof its organization by integrating climate change in its forecasting and early warning efforts and use that knowledge as a tool for conflict prevention and adaptation in order to better address the risk-multiplying effects of climate change. Climate mitigation efforts and technologies also offer NATO the opportunity to reduce the logistical footprint of military operations and enhance operational effectiveness.

A changing tide

During recent military deployments, NATO units experienced the disrupting impacts of a changing climate. In Afghanistan, for instance, they experienced how water shortages created tensions at the community level and witnessed how the Taliban used those frictions to gain control over the local population.[3] In Somalia, in turn, they saw how poor farming and fishing communities turned to piracy or joined al-Shabaab in order to sustain their families.[4] And in Iraq they observed how ISIS, or DAESH, weaponized access to drinking water as a tool to control local populations.[5] Next to these operational experiences, military units have regularly been involved in disaster relief missions, dealing with the devastating impact of extreme weather incidents.[6]

In recent years, NATO's understanding of the ways in which climate change affects global security has developed rapidly and it has become a more central policy topic. At the NATO summit in 2021, NATO adopted a "Climate Change and Security Action Plan," introducing "climate change

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[1] Sherri Goodman and Katarina Kertysova, "NATO: An unexpected driver of climate action?," *NATO Review*, February 1, 2022, https://www.nato.int/docu/review/articles/2022/02/01/nato-an-unexpected-driver-of-climate-action/index.html.

[2] Jamie Shea, "NATO and Climate Change: Better Late Than Never," The German Marshall Fund of the United States, March 11, 2022, https://www.gmfus.org/news/nato-and-climate-change-better-late-never.

[3] Elisabeth B. Hessami, "As Afghanistan's Water Crisis Escalates, More Effective Water Governance Could Bolster Regional Stability," *New Security Beat*, July 11, 2018, https://www.newsecuritybeat.org/2018/07/afghanistans-water-crisis-escalates-effective-water-governance-bolster-regional-stability/.

[4] Karolina Eklöw and Florian Krampe, *Policy Brief: Climate-Related Security Risks and Peacebuilding in Somalia* (Stockholm: SIPRI, October 2019), https://www.sipri.org/sites/default/files/2019-10/sipripp53_2.pdf.

[5] Marcus D. King, "Dying for a Drink," *American Scientist* 107, no. 5 (September-October 2019): 296, https://doi.org/10.1511/2019.107.5.296.

[6] Maurits Jochems, "NATO's growing Humanitarian Role," *NATO Review*, March 1, 2006, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/224422/evidence-nato-humanitarian-role.pdf.

considerations into its full spectrum of work, ranging from defense planning and capability development to civil preparedness and exercises."[7] At the 2022 summit in Madrid, NATO announced its intent to become net-zero by 2050 and agreed to establish a Climate Change and Security Centre of Excellence in Canada.[8] So, overall, the tide is changing, and efforts are shifting from understanding the climate-security nexus to finding ways to deal with that nexus.

Climate-proofing our security and security-proofing our climate

Now that NATO is becoming more aware of this nexus, the question becomes: How to climate-proof our security in such a way that it also strengthens the alliance by addressing future security demands? The time has come to shift from calling for action to initiating it. We have unprecedented foresight of climate-related crises to come; we therefore have a responsibility to act, adapt, and prepare. Recent evaluations of the coronavirus pandemic show that in most countries pandemic preparedness was insufficient, affecting the ability to anticipate shock.[9] These evaluations demonstrated how important it is to be prepared in order to improve responsiveness and not waste time.

However, there is still much concern within security communities that all this attention to climate change might affect their ability to address current security challenges, which the crisis in Ukraine only reinforces.[10] Given these realities, this paper offers some food for thought on three areas where NATO could help address climate change in a way that also enables NATO to better meet its current and future challenges.

1. Anticipating and understanding the next crisis

Recognizing climate change as a root cause or a driver of future risks makes it essential for intelligence services to assess its possible security implications and to develop a more context-specific understanding of the nexus between climate and security.[11] Countries with fragile socio-economic and political systems are more susceptible to the impacts of climate change than countries where the government can act as a buffer for the fallouts of climate change.[12] The Hague Centre for Strategic Studies identified seven climate-related conflict pathways, highlighting the specific causal mechanisms linking climate change to (violent) conflict.[13] The study also highlights regions that are

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[7] "NATO Climate Change and Security Action Plan," NATO, June 14, 2021, https://www.nato.int/cps/en/natohq/official_texts_185174.htm.

[8] Jens Stoltenberg, "Opening speech by NATO Secretary General Jens Stoltenberg at the High-Level Dialogue on Climate and Security, NATO Public Forum" (speech, Madrid, Spain, June 28, 2022), NATO, https://www.nato.int/cps/en/natohq/197168.htm?selectedLocale=en. On the COE, see Simon Dalby, "Climate Security: Moving NATO—and Canada—Beyond Fossil Fuels," in this volume.

[9] OECD, "First lessons from government evaluations of COVID-19 responses: A synthesis," OECD, January 21, 2022, https://www.oecd.org/coronavirus/policy-responses/first-lessons-from-government-evaluations-of-covid-19-responses-a-synthesis-483507d6/.

[10] Shea, "NATO and Climate Change."

[11] See Erin Sikorsky, "Warning on a Warming Planet: Integrating Climate Change into NATO's Intelligence Programs," in this volume.

[12] Erin Sikorsky and Francesco Femia, eds., *The World Climate and Security Report 2021* (Washington: Expert Group of the International Military Council on Climate and Security [IMCCS], June 2021), https://imccs.org/wp-content/uploads/2021/06/World-Climate-and-Security-Report-2021.pdf.

[13] Tim Sweijs, Marleen de Haan, and Hugo van Manen, *Unpacking the Climate Security Nexus: Seven Pathologies Linking Climate Change to Violent Conflict* (The Hague: The Hague Centre for Strategic Studies, 2022, https://hcss.nl/report/unpacking-the-climate-security-nexus/.

particularly prone to each pathway.[14] Projecting *how* a conflict could materialize provides the opportunity to meet climate-related conflict risks with a higher level of preparedness, design more effective interventions, and thus moderate their trajectory or mitigate the negative effects that cannot be prevented. This understanding is crucial if we want to address the root causes of conflicts instead of fighting the symptoms when it is already too late.

These climate-related risk-assessments not only help the military to better anticipate and prepare for the next crisis but can also contribute to whole-of-government efforts to 'security-proof' adaptation programs in fragile regions. Moreover, mapping the climate-related conflict pathways in fragile regions helps to identify indicators and predictors needed for the development of early warning systems.[15] These systems are an important tool in supporting local, regional, and national communities in their efforts to avoid, prepare for, and become more resilient against climate-related insecurities.

It is becoming increasingly clear that we need to adapt and build resilience against our changing climate. There is no adaptation without security, as there is no security without adaptation. They are two sides of the same coin.

2. Climate proofing our security institutions

Adaptation is mainly about building resilience, internally within the NATO organization and externally within its security environment. Within military organizations, vital infrastructure like naval harbours and operational airfields need to be protected against the impacts of rising sea levels, floods, and extreme weather. The US *Report on the Effects of a Changing Climate on the Department of Defense* (2019) reveals that about two-thirds of the 79 military installations surveyed are already facing climate change-related risks.[16] To ensure that soldiers can operate in extreme weather conditions, new standards also need to be set for equipping and training them and their units.[17] The US *Department of Defense Climate Risk Analysis* (2021) shows how vulnerability assessments can help to set the right requirements for the development and acquisition of new equipment, thereby climate-proofing NATO's military capabilities.[18]

Externally, NATO and its member states could enhance civil-military cooperation on outreach programs to build resilience against the effects of climate change. The significant and growing risk of droughts and environmental degradation, which especially affects populations in fragile states and regions, will increasingly lead to migration flows and conditions that state and non-state actors can exploit.[19] The military is needed to create safe operating spaces for humanitarian and

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[14] Sweijs, de Haan, and van Manen, *Unpacking the Climate Security Nexus*.
[15] See Sikorsky, "Warning on a Warming Planet."
[16] US Department of Defense, *Report on Effects of a Changing Climate to the Department of Defense* (Washington, DC: Office of the Under Secretary of Defense for Acquisition and Sustainment, January 2019), https://media.defense.gov/2019/Jan/29/2002084200/-1/-1/1/CLIMATE-CHANGE-REPORT-2019.PDF.
[17] Rene Heise, "NATO is responding to new challenges posed by climate change," *NATO Review*, April 1, 2021, https://www.nato.int/docu/review/articles/2021/04/01/nato-is-responding-to-new-challenges-posed-by-climate-change/index.html.
[18] US Department of Defense, *Department of Defense Climate Risk Analysis* (Washington, DC: Office of the Under Secretary of Policy, 2021), https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF.
[19] US National Intelligence Council, *Climate Change and International Responses: Increasing Challenges to US National Security Through 2040* (2021), https://www.odni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf. See also Ebimboere Seiyefa, "Climate Change in Africa and its Impact on Global Security," in this volume.

other actors, and to help build resilience in those fragile regions.

3. Increasing self-sustainability through mitigation efforts

It is important to realize that there is no way back when it comes to mitigation and 'greening' the armed forces. The civil sector is going through a process of energy transition, reducing its dependence on fossil fuels. The automotive industry is rapidly moving to full electric vehicles and investments in green technologies are growing rapidly; "[t]he global green technology and sustainability market … is projected to grow from USD 13.76 billion in 2022 to USD 51.09 billion by 2029."[20]

The Ukraine crisis is only speeding up that process of energy transition and the need to become more autonomous in our energy supply. Europe is undergoing a fundamental rethink of its energy sources and future energy partners.[21] It shows that we are at the beginning of a new transformation and NATO needs to get ahead of the game, which is why it is promising that the alliance announced its goal to achieve net zero by 2050. A recent IMCCS Expert Group Report, *Decarbonized Defense: The need for clean military power in the age of climate change*, outlines the options for NATO members to reduce their emissions.[22]

We need to see mitigation not only as inevitable but also as an opportunity. Historically, defence industries have often been a frontrunner when it comes to embracing and developing new technological innovations. GPS and the internet are great examples of military-driven technological concepts that changed the world.[23] Both defence organizations and defence industries should embrace and investigate the potential of green technologies. Using green technologies is about more than just reducing emissions. Green technologies can, for instance, help militaries to:

- Extend the endurance of operational units, making them more self-sustaining and thereby improving their combat effectiveness;
- Reduce the sound and heat signatures of military assets, making them stealthier;
- Decrease the need for logistical support, thereby improving teeth-to-tail ratios, cutting the costs of logistical supply chains and reducing the need to protect long vulnerable supply lines through contested areas;
- Reduce the ecological impact on local communities, where the presence of deployed military units also affects ground water levels and fuel prices.

Overall, green technologies offer great win-win opportunities by not only helping to reduce emissions, but also by cutting operational costs and risks of long supply chains, and by improving the operational effectiveness of deployed units.

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[20] Fortune Business Insights, *Green Technology and Sustainability Market Size, Share & COVID 19 Impact Analysis* (Fortune Business Insights, April 2022), https://www.fortunebusinessinsights.com/green-technology-and-sustainability-market-102221.

[21] Mark Nevitt, "Climate Security, Energy Security, and the Russia-Ukraine War," *Just Security*, May 11, 2022, https://www.justsecurity.org/81440/climate-security-energy-security-and-the-russia-ukraine-war/.

[22] Louise van Schaik et al., *Decarbonized Defense: The Need for Clean Military Power in the Age of Climate Change* (Expert Group of the International Military Council on Climate and Security [IMCCS], June 2022), https://imccs.org/wp-content/uploads/2022/06/Decarbonized-Defense-World-Climate-and-Security-Report-2022-Vol.-I.pdf.

[23] Rod Green, *100 Military Inventions that Changed the World* (London: Constable & Robinson Ltd, 2013).

Conclusion

The question is not whether climate change will affect our security, but when, where, and to what extent. It might not be an immediate military problem, but it does shape our future security environment. Whether we like it or not, climate change affects NATO's core tasks and is also a matter of global security, requiring NATO to adapt and become part of the solution.

NATO should not regard climate change as a new and separate risk because climate change multiplies many of the existing risks that we are already facing. Adapting to climate change therefore helps NATO to better address the widening array of future security risks and can be regarded as a tool for conflict prevention. Mitigation efforts also offer technological opportunities to reduce the logistical footprint of military operations and enhance operational endurance. For NATO, addressing climate change is a necessity and an opportunity to future-proof its organization. ■

Tom Middendorp was The Netherlands Chief of Defence for five and a half years and spent thirty-eight years serving his country. He commanded soldiers on all levels, led a large multinational taskforce in the south of Afghanistan, and was involved in over twenty different military missions as the Director of Operations. Tom led the Defence organization through an intense period of transition and has extensive operational and strategic experience of building unity of effort with different nations, governmental- and non-governmental organizations, international institutions, and civil stakeholders in order to deal with a wide range of security risks. After retiring in 2017 he fully dedicated himself to helping address the climate-security nexus. He joined The Clingendael Institute as a Senior Visiting Fellow and is attached to The Hague Center for Strategic Studies as a Strategic Security Expert. In 2019 Tom Middendorp established—and became the Chairman of—the International Military Council on Climate and Security (IMCCS). He is involved in several innovations in the area of climate mitigation and adaptation and since 2022 he has supported the Global Center for Adaptation in including the security nexus in their adaptation programs. Tom also acts as the Netherlands' Special Envoy on European Defence Cooperation.

Warning on a Warming Planet: Integrating Climate Change into NATO's Intelligence Programs

Erin Sikorsky

In June 2021, NATO released its first Climate Change and Security Action Plan, which opened with a stark assessment: "Climate change is one of the defining challenges of our times."[1] Looking across geographies of concern for NATO, it is clear that climate change is already reshaping the landscape in which the alliance operates – from unprecedented heat in Iraq stressing agricultural livelihoods and water security, to melting ice in the Arctic opening opportunities for increased military and commercial action, to changing precipitation patterns increasing devastating flooding in Europe.[2] Understanding and addressing the security implications of these threats requires NATO intelligence programs to evolve toward better understandings of transnational, systemic risk, acquiring new analytic tools, skills, and mindsets matched to the threat. Such capabilities include greater scientific and data literacy, more structured analytic foresight exercises aimed at identifying out-dated assumptions, and a focus on integrating climate change information into existing analytic endeavours.[3]

NATO is not alone in grappling with these challenges. Many alliance members, including the US, the UK, France, and Canada, have elevated climate security concerns in their defence and security policies in recent years. As the US Director of National Intelligence Avril Haines said at President Biden's 2021 Summit on Climate, "For the intelligence community, climate change is both a near-term and a long-term threat that will define the next generation … [it should] ... be fully integrated with every aspect of our analysis in order to allow us to not only monitor the threat, but to also critically ensure that policymakers understand the importance of climate change on seemingly unrelated policies."[4] Clearly, there are opportunities for collaboration among allies that could yield significant changes in NATO's approach to intelligence.

This paper begins with a scene-setter on the NATO intelligence landscape and then identifies three areas in which NATO should focus its efforts regarding climate change-related intelligence. The first is simply integrating climate and environmental change data and analysis into existing programs. The second is evaluating and developing climate security risk assessment

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[1] "NATO Climate Change and Security Action Plan," NATO, June 14, 2021, https://www.nato.int/cps/en/natohq/official_texts_185174.htm.

[2] Erin Sikorsky and Sherri Goodman, "A Climate Security Plan for NATO: Collective Defence for the 21st Century," *Environmental Affairs* (Spring 2021): 32-37, https://policyexchange.org.uk/wp-content/uploads/2022/10/Environmental-Affairs-the-Geopolitcs-of-Climate-Change.pdf.

[3] Other experts have made similar arguments in support of more robust climate intelligence capabilities for NATO. For example, see Olivia Lazard, "Realigning NATO's Role and Responsibilities," in *Sustainable Peace & Security in a Changing Climate: Recommendations for NATO 2030*, eds. Ronald A. Klingham and Olivia Lazard (Brussels and the Hague: Environment & Development Resource Centre, April 30, 2021), 7-8, https://www.brusselsdialogue.net/ncwes; Jamie Shea, "NATO and Climate Change: Better Late Than Never," The German Marshall Fund of the United States, March 2022, 9, https://www.gmfus.org/sites/default/files/2022-03/Shea%20-%20NATO%20climate%20-%20brief.pdf; Lucía García Rico, *NATO and Climate Change: A Climatized Perspective on Security*, Project on Europe and the Transatlantic Relationship (Cambridge, MA: Belfer Center for Science and International Affairs, Harvard Kennedy School, August 2022), 26-27, https://www.belfercenter.org/sites/default/files/files/publication/Belfer%20Nato_Climate%20Change_VF_1.pdf.

[4] "Remarks as prepared for delivery by Avril Haines, Director of National Intelligence" (speech, 2021 Leaders Summit on Climate, April 22, 2021), Office of the Director of National Intelligence, https://www.dni.gov/index.php/newsroom/speeches-interviews/speeches-interviews-2021/item/2208-dni-haines-remarks-at-the-2021-leaders-summit-on-climate.

frameworks. The third is honing climate security intelligence education and training programs for NATO intelligence officers and member nations. In each of these three areas, NATO does not have to start from scratch; instead, it can leverage the experiences and best practices of member states and non-state actors.

Background on NATO Intelligence Programs

NATO intelligence programs have expanded and evolved over the years from ad-hoc, primarily bilateral, sharing relationships to much more institutionalized processes, though still largely dominated by US intelligence capabilities. The terrorist attacks of 9/11 and subsequent uptick in terrorist threats in Europe resulted in the expansion of information sharing among alliance members, a greater focus on analytic standards and techniques, and the creation of the alliance's Terrorist Threat Intelligence Unit.[5] In 2006, NATO formally established the NATO Intelligence Fusion Center to support NATO operations in places like Libya, Afghanistan, Kosovo and the Horn of Africa.

In the wake of the 2014 Russian invasion of Crimea and recognition of the range of new threats facing the alliance, NATO once again increased its attention to strengthening and streamlining its intelligence capacities. In 2016, to better coordinate the range of intelligence programs and institutions across the organization, the alliance appointed its first Assistant Secretary General (ASG) for Intelligence and Security, Arndt Freytag von Loringhoven. Under his leadership, NATO reformed intelligence operations to better address hybrid threats, support the military and civilian leadership of the alliance, and cover the broader geographic scope, including the Middle East and Sub-Saharan Africa, in which the alliance now has concerns. These reforms included the establishment of a Joint Intelligence and Security Division (JISD), which has helped NATO members develop a shared understanding of the threats facing the alliance. NATO leadership cites the analysis of the JISD as critical in ensuring a robust response to Russia's breach of the Intermediate-Range Nuclear Forces Treaty and Moscow's attempted assassination of Sergei Skripal in 2018.[6]

What Is Climate Intelligence?

Now, NATO faces another turning point in the evolution of its intelligence capacities. The coronavirus pandemic and the increasing impacts from climate hazards underscore the importance of developing more robust capacities to address actorless threats in which no state or individual is directly responsible for the risk.[7] Though the nature of the climate threat requires a shift from traditional security mindsets, addressing it also offers new opportunities for cross-alliance collaboration, given that much of the information needed to analyze climate risks is unclassified. Assessing climate security threats is less about gathering secrets and more about developing and sharing new analytic tools, frameworks, and approaches, such as real-time early warning systems and scenario exercises. Therefore, NATO can, and should, leverage climate security intelligence approaches to build trust and closer partnerships across the alliance. For example, climate change-

[5] Juliette Bird, "NATO's Role in Counter-Terrorism," *Perspectives on Terrorism* 9, no. 2 (2015): 61–70, http://www.jstor.org/stable/26297360.
[6] Arndt Freytag von Loringhoven, "A New Era for NATO Intelligence," *NATO Review*, October 29, 2019, https://www.nato.int/docu/review/articles/2019/10/29/a-new-era-for-nato-intelligence/index.html.
[7] Morgan Bazilian and Cullen Hendrix, "An Age of Actorless Threats: Rethinking National Security in Light of COVID and Climate," *Just Security*, October 23, 2020, https://www.justsecurity.org/72939/an-age-of-actorless-threats-re-thinking-national-security-in-light-of-covid-and-climate/.

related intelligence efforts provide an opportunity for the ASG for Intelligence and Security to work closely with the existing and nascent NATO Centres of Excellence on Energy Security, Disaster Response, and Climate Security in developing and leveraging these new approaches.

Integrate a Climate Lens into Existing Programs

Climate security risks often manifest as "compound risk" – in other words, climate hazards make existing threats worse. Additionally, they arise when climate hazards intersect with other drivers of risk, such as state fragility, existing ethnic or political tensions, geopolitical competition, or economic inequality.[8] Therefore, one of the most important pathways for addressing climate security in NATO intelligence programs is to bring climate analysis and risk modeling into existing lines of effort.

This integration should happen at the tactical and strategic level. For example, when assessing operational developments, it is increasingly the case that changes in temperature and precipitation are shifting where and when militaries and insurgent groups will fight. Such a dynamic was at play in the timing of the Russian invasion of Ukraine. An unusually warm winter in 2022 meant that the ground in Ukraine was not frozen in February, and some analysts assess that this factor contributed to a delay in the onset of Russian operations.[9] Meanwhile, in sub-Saharan Africa, the changes in the rainy season will likely change fighting patterns for non-state actors. Traditionally, insurgent groups in the region have had the advantage during the rainy season as heavy precipitation makes roads impassable for heavy traditional military equipment and complicates counter-insurgency operations.[10] More variability in precipitation likely means more variability in insurgent behaviour. As the planet continues to warm, intelligence assessments that base judgments on out-dated understandings of regional climate dynamics will get key operational questions wrong.

Notably, in recent years NATO has increasingly focused its intelligence activities on terrorist and hybrid threats, and this analysis will benefit from the integration of a climate change perspective. For example, the Arctic is a key area for hybrid threats from Russia and China, and understanding the trajectory of warming in the region is crucial for identifying opportunities and challenges for managing such threats. It is likely that both countries will use increased commercial activity in the region as cover for strategic positioning and dual-use data collection, gray zone activity that could escalate to more direct confrontation.[11] Regarding terrorism, climate change impacts like desertification and drought, undermine subsistence agriculture and reduces the opportunity cost of joining terrorist or extremist groups for increasingly desperate farmers and herders. Therefore, assessing recruitment trends for such groups requires an understanding of the impact of climate change.[12]

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[8] Erin Sikorsky, "National Security and Climate Change: The Attention It Deserves?", *Survival* 64, no. 1 (February 2022): 67-73, DOI: 10.1080/00396338.2022.2032961.

[9] Julia Ladur et al., "Wetlands and radioactive soil: How Ukraine's geography could influence a Russian invasion," *The Washington Post*, February 4, 2022, https://www.washingtonpost.com/world/interactive/2022/ukraine-russia-invasion-geography-weather/.

[10] Christopher L. Gabriel, "Insurgency Season: The link between the Intertropical Convergence Zone and insurgencies in Equatorial Africa," (Naval War College, 2008), https://apps.dtic.mil/sti/pdfs/ADA484351.pdf.

[11] See, for example, Sherri Goodman et al., *Climate Change and Security in the Arctic* (Center for Climate and Security, an institute of the Council on Strategic Risks, and The Norwegian Institute of International Affairs, January 2021), https://climateandsecurity.org/wp-content/uploads/2021/01/Climate-Change-and-Security-in-the-Arctic_CCS_NUPI_January-2021.pdf.

[12] US National Intelligence Council, *Global Trends 2040: A More Contested World* (2021), https://www.dni.gov/files/ODNI/documents/assessments/GlobalTrends_2040.pdf. See also Ebimboere Seiyefa, "Climate Change in Africa and its Impact on Global Security" and Ayan Mahamoud, "Climate Security Pathways in the Horn of Africa and towards a Partnership with NATO," both in this volume.

Evaluate and Develop Risk Assessment Frameworks

NATO's Climate Change and Security Action Plan calls for the development of annual Climate Change and Security Impact Assessments. According to the Plan, these assessments will "analyze the impact of climate change on NATO's strategic environment and NATO's assets, installations, missions and operations."[13] Given their existing work in examining the broader strategic environment and threats to the alliance, NATO's intelligence programs should play a key role in developing such assessments. In particular, NATO's existing intelligence warning system (NIWS) provides a starting point as a widely accepted mechanism in the alliance, albeit one that currently lacks a serious approach to climate security.[14]

To update the NIWS with the aim of incorporating climate security, NATO can draw on the work of its member states and non-governmental organizations. To evaluate the strategic environment, the US intelligence community's 2021 National Intelligence Estimate on climate change is a good starting point, particularly its identification of the top 11 countries of highest concern.[15] NATO intelligence officers should also seek to leverage diagnostic analytic reports and tools developed by non-governmental research institutes, such as the Center for Climate and Security's Security Threat Assessment of Climate Change or adelphi's Weathering Risk.[16] NATO should integrate these reports and tools with its own classified information to assess risk levels and the capacity of key actors to manage climate hazards.

Educate and Train NATO Member States Military Intelligence Officers

Not all NATO member countries share the same level of understanding or concern about climate security risks.[17] Even among countries where the risks are acknowledged, intelligence services have lagged in implementing robust climate security analysis programs due to competing demands for finite resources. However, intelligence training and education programs can be powerful tools that enable NATO's leadership to help member states better understand climate security risks and the importance of integrating a climate lens into intelligence work. For example, NATO intelligence leaders should consider using interactive tabletop or scenario exercises to demonstrate how climate hazards may shape Russian and Chinese decision making in the Arctic or migration patterns in the Middle East and North Africa – two areas of high concern to many NATO members. Also, the NATO Intelligence Fusion Center, which provides intelligence to NATO's Supreme Allied Commander Europe (SACEUR) and other NATO leaders, maintains a regular schedule of regionally focused conferences for member states. Climate considerations should be integrated into such discussions, as well as in tradecraft training sessions.

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[13] "NATO Climate Change and Security Action Plan."
[14] Tyler Lippert, "NATO, Climate Change, and Security: A Risk Governance Approach," (PhD diss., Pardee Rand Graduate School, 2016), 96.
[15] US National Intelligence Council, *Climate Change and International Responses Increasing Challenges to US National Security Through 2040* (2021), https://www.dni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf.
[16] See Kate Guy et al., *A Security Threat Assessment of Global Climate Change: How Likely Warming Scenarios Indicate a Catastrophic Security Future* (Washington, DC: National Security, Military, and Intelligence Panel on Climate Change, The Center for Climate and Security, an institute of The Council on Strategic Risks, February 2020), https://climateandsecurity.org/wp-content/uploads/2021/01/Climate-Change-and-Security-in-the-Arctic_CCS_NUPI_January-2021.pdf; "Weathering Risk," accessed May 15, 2022, https://weatheringrisk.org/en.
[17] Lippert, "NATO, Climate Change, and Security," 78.

This pillar of intelligence work for NATO is critical for managing climate security risks in the future, as the alliance is only as strong as its member states. A focus on developing and supporting the capacity of individual states to understand and assess these risks will pay dividends for the alliance not only in better managing climate hazards, but also in ensuring allies have the capability to address the range of threats that they face.

Conclusion

NATO's robust and coordinated response to the Russian invasion of Ukraine has demonstrated the power of the alliance when member states perceive a common threat. The invasion also underscores that state threats will remain of high concern to NATO. Yet climate change also poses risks for all states in the alliance, and will reshape the landscape against which threats like those from Russia unfold. The primary purposes of intelligence – decision advantage and warning – remain critically important. To maximize the value of intelligence, NATO must therefore integrate a climate lens into its intelligence work. ■

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Climate Security: Moving NATO—and Canada—Beyond Fossil Fuels

Simon Dalby

Climate change is, at last, beginning to get attention in NATO's deliberations. The new 2022 Strategic Concept mentions it as a "defining challenge of our time."[1] But having noted this, the document is nearly silent on how to address these issues. Canada will host a new Centre of Excellence (COE) on climate change for NATO, and here at least is one avenue where useful things might be done; if, that is, practitioners have the courage to tackle the really big questions that lie at the heart of the matter, and tackle questions of how to rapidly reduce the use of fossil fuels.[2]

Put simply, climate change is not a traditional security issue; it is a truly global issue with potentially catastrophic future consequences—food shortages, infrastructure destruction, and social collapse—for much of humanity, Canadians included.[3] While extreme weather, made more severe by climate change, is already killing and displacing people and causing economic disruptions, these dangers will continue to get worse until modern societies move rapidly to curtail the use of fossil fuels and build much more resilient infrastructure. Their long-term survival, a matter of existential security for NATO states, depends on getting this right.[4]

Attempts to add climate change into the conventional panoply of threats, to which NATO responds, may be ineffective at best and counterproductive at worst. Not least because treating the consequences of climate change as an external threat to the alliance will likely lead to a focus on symptoms while failing to consider root causes.[5] Tackling the production of fossil fuels immediately is the key to long-term security. Getting distracted by political fears of migration, which are difficult to link to climate change directly, and turning people in search of safety and security and a better life into threats, responding with force by closing borders and deporting refugees, simply adds to their insecurity.[6]

A focus on the causes of climate change will be much more efficacious. What is crucial to recognize is the simple but important fact that much of the rise of greenhouse gas volumes in the atmosphere is a direct result of fossil fuel combustion. NATO states are among those who have historically done most of this burning, and as such, given the long-term legacy of this in the atmosphere, are among the major contributors to climate change.[7] Leading on climate change requires that such states that have historically generated so much greenhouse gas move first on trying to reduce consumption and quickly pivot to novel modes of energy and economy. Cutting emissions all round is obviously necessary as the Paris Agreement on Climate Change stipulates, but

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[1] NATO, *NATO 2022 Strategic Concept* (2022), 6, https://www.nato.int/strategic-concept/.

[2] "NATO Climate Change and Security Centre of Excellence," Government of Canada, accessed December 20, 2022, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/nato-otan/centre-excellence.aspx?lang=eng.

[3] Mitchell Binding, *What Threats Does Climate Change Pose to Canada and How Are We Situated to Face Those Threats? Part One.* (Conference of Defence Associations, Vimy Paper 50, March 2022), https://cdainstitute.ca/wp-content/uploads/2022/04/VIMY-PAPER-VOL-50-Edited.pdf.

[4] The key science of all this is usefully summarized in J. Rockström and O. Gaffney, *Breaking Boundaries: The Science of our Planet* (New York: DK Publishing, 2021), and in S. Lewis and M. Maslin, *The Human Planet: How We Created the Anthropocene* (London: Pelican Books, 2018).

[5] The limits of this perspective are clear in T.H. Lippert *NATO, Climate Change and International Security: A Risk Governance Approach* (London: Palgrave Macmillan, 2019).

[6] J. Selby and G. Daoust, *Rapid evidence assessment on the impacts of climate change on migration patterns* (London: Foreign, Commonwealth and Development Office, 2021).

[7] C.W. Callahan and J.S. Mankin, "National attribution of historical climate damages," *Climatic Change* 172, no. 40 (2022): 40-59.

moving first on it is a key component of leadership.[8] The urgency of doing this in Europe has been highlighted in 2022 by the vulnerability of many NATO members to gas supply disruptions from Russia.

While less vulnerable to Russian gas supply disruptions, Canada is in a difficult situation in terms of its record of fossil fuel production because, despite numerous announcements and many good intentions, greenhouse gas emissions have not fallen. Oil and gas production are still seen as beneficial activities in many parts of the country, rather than as a major cause of future insecurity.[9] The 2022 plans for emissions reductions might decrease fossil fuel consumption, but this remains in the future.[10] If Canada is to lead on this issue, through the COE and elsewhere, a rapid change of direction is needed.

The early stages of the climate-disrupted future, which many have long been warned about, have arrived.[11] However, policymakers in Canada have been slow to realize that they have already reached that critical juncture. Bluntly put, what security now has to be about is rapid adaptation, not just to obvious meteorological hazards, but also to new modes of economy and energy use. New circumstances require new perspectives, policies, and practices.[12] These have been slow to appear, especially in Canada where the fossil fuel sector has very large influence on public policy, and as such the challenge for this country is even greater than in many NATO partners where the recognition of climate dangers came years ago.

Modernity has been based on the use of fossil fuels; now they are making NATO doubly insecure, both through threats to supply as well as climate disruptions. The endless squabbles about gas supplies, pipelines, and price spikes in Europe emphasize the difficulties of relying on fossil fuel to power most things. Reducing the reliance on fuel produces climate benefits because of reduced greenhouse gas emissions, health improvements because of better air quality and fewer natural disasters, and economic benefits because of reduced dependence on unreliable and often expensive energy source. The security dimensions of this have been obvious to at least the American military for years; its dependence on fuel convoys in Iraq and Afghanistan made its supply lines very vulnerable and tied up large forces in protecting them.[13] On the larger scale, European vulnerabilities to Russian gas make the same point repeatedly.

Where energy security was traditionally understood as reliable supplies of fuel at affordable prices, now both supply lines and climate change suggest that this model needs to be replaced by energy sources, mostly electrical ones, not dependent on these fuels.[14] Where much of NATO has traditionally worked on securing reliable supplies of fossil fuels, what now needs to be secured is a rapid transition off them. And simultaneously NATO needs to coordinate similar activities with other states outside the region.

While there has been considerable discussion about climate change causing conflict, and the empirical analyses of this topic are not at all clear, the additional policy matter that needs attention is

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[8] See "Key Aspects of the Paris Agreement," United Nations Climate Change, accessed December 20, 2022, https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/key-aspects-of-the-paris-agreement.
[9] Robert MacNeil, *Thirty Years of Failure: Understanding Canadian Climate Policy* (Halifax: Fernwood Publishers, 2019).
[10] "Canada's Climate Plan," Government of Canada, last modified September 23, 2022, https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan.html.
[11] One of the first key conferences on these themes of climate security was held in Toronto in 1988. See *The Changing Atmosphere: Implications for Global Security*, Conference Proceedings, Toronto, Canada, 27-30 June 1988 (Geneva: Secretariat of the World Meteorological Organization, 1989), https://digitallibrary.un.org/record/106359?ln=en.
[12] Simon Dalby, *Rethinking Environmental Security* (Cheltenham: Edward Elgar, 2022).
[13] Michael Klare, *All Hell Breaking Loose: The Pentagon's Perspective on Climate Change* (New York: Metropolitan Books, 2019).
[14] Jonna Nyman, *The Energy Security Paradox: Rethinking Energy (In)Security in the United States and China* (Oxford: Oxford University Press, 2018).

how to cope with future declining demand for fossil fuels, once the world realizes that climate mitigation has to be taken seriously.[15] Policy responses to climate change themselves might cause conflict, especially where states suddenly find their fossil fuel revenues declining due to lack of customers and where they have not planned for orderly transitions to new modes of economy.[16] International arrangements to facilitate such transitions make very good sense, and out-of-area activities on the part of the alliance need to consider these too.

What climate change has made clear is that security no longer makes sense in terms of perpetuating the existing fossil-fuelled social order. This is what national security has long been about in NATO, but it is precisely the existing system—powered by vast amounts of fossil fuel—that is causing accelerating disruptions and hence insecurity. Planning to live in a more unpredictable world is part of the response to climate change. But unless the source of the problem of fossil fuels combustion is tackled, palliative measures in terms of adaptation will continue to be overpowered by increasing meteorological instabilities.

Economic and energy transitions are key to long-term climate stability, a necessity to feed a human population of many billions in future. This is what climate activists, particularly younger generations of climate activists, epitomised by climate "striking" students around the world, understand clearly, even if their elders have great difficulty comprehending why their grandchildren despair at the failures on the part of governments to act to provide their future security.[17] Climate disruptions are cumulative, which means that if you are young and expect to live until near the end of the century, decisions made now will have dramatic consequences for your old age. If security is meaningful at all now, it is about the future and making sure modern societies can continue to thrive without the use of the fossil fuels.

NATO has always been more than just a military alliance; it has been about promoting modern modes of life and economy as well as researching its problems.[18] But now it turns out that while this mode of life may be most agreeable to many of member states' citizens, and to the countries that may aspire to join the alliance, its energy sources have been indirectly causing much future turmoil for the world. Hence the role for NATO now is not to raise the alarm about potential external threats to this mode of life, but to recognize that this mode of life is itself threatening to people near and far, but most especially to future generations.

Mostly understood as a defensive alliance, this is perhaps not what many supporters of NATO may wish to hear. But the novel circumstances of our times, highlighted by climate change, emphasize this crucial point. In so far as NATO has promoted the values of liberal democracy and its prosperous lifestyles, its task now is to move the discussion forward to look to the benefits of tackling climate change.

The most obvious of these are the reduction of society's vulnerabilities to fuel disruptions and the price volatility that marks fossil-fuel economics. Using electric power, distributed grids, and novel storage systems suggests a very different mode of energy security. They alone will not solve all future security problems, but they are a key step forward. The added benefits of reduced climate change disruptions work with this, not against it. If vast amounts of fuel do not need to be extracted from the ground, transported, and stored, the overall environmental disruption caused by modern industrial life can be reduced simultaneously.

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[15] Josh Busby, *States and Nature* (Cambridge: Cambridge University Press, 2022).

[16] Global Commission on the Geopolitics of Energy Transformation, *A New World: The Geopolitics of Energy Transformation* (International Renewable Energy Agency, 2019).

[17] Greta Thunberg, *No One Is Too Small to Make a Difference* (London: Penguin, 2019).

[18] One of the most comprehensive reports on environmental security challenges in the 1990s came from the NATO. See K.M. Lietzmann and G.D. Vest, eds., *Environment and Security in an International Context* (Bonn: North Atlantic Treaty Organization Committee on the Challenges of Modern Society, 1999).

All of which suggests that it is high time to pivot to that cleaner future. Hence if Canada is to offer leadership in all of this, our ability to rapidly move towards this new mode of economy has to be a priority in how we rethink our national security and our contribution to the alliance.

This is a tall order for NATO's future COE. But clearly rethinking security in terms of facilitating adaptation rather than maintaining the existing unsustainable mode of fossil-fuelled economy has to be the focus if climate security is to be tackled at the scale and speed that is clearly necessary. Leadership on this theme requires thinking big and recognizing that designing the future has to be about making one powered very differently from the past. ■

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Is the Dam Finally Breaking?
Extreme Weather Events, Public Perceptions of Climate Change, and Policymaking

Justin Michael James Dell

The 2020s have already seen several extreme weather events. From the Australian bushfires of 2019-2020, to the unprecedented abundance of hurricanes in 2020, to record-breaking temperatures in Western Canada in the summer of 2021, a succession of dramatic, climate-related incidents has empirically – and for many now, experientially – confirmed the reality of global climate change, underscoring the debut of an unprecedented epoch of Earth's history.[1] Humanity now finds itself evermore clearly in the Anthropocene, a geological period the defining feature of which is humankind's collective capacity to change Earth's climate, for good or ill.[2] As ominous as these extreme weather events may be, they provide NATO and other major influencers in global governance with evidence-based arguments for persuading the world's population that it faces a significant threat from anthropogenic climate change, thereby obtaining greater democratic support for policies aimed at its mitigation.

The tangible effects of the climate crisis threaten to curtail the liberty of the individual, limit their choices, and encroach on their personal space in new and profound ways. What is known as the US Desert Southwest, encompassing large areas of Nevada, California, Arizona, New Mexico, and Texas, has come to attest to this phenomenon. On the one hand, this region has experienced double or even triple the rate of population growth of the rest of the country, a trend that currently shows no sign of abating.[3] Clark County, Nevada, containing Las Vegas, is projected to add over a million inhabitants between now and 2060.[4] This demographic growth has been dependent on intensive water diversion and irrigation schemes that appear grossly unsustainable in the face of climate change. A stark example of this is Hoover Dam and its resultant human-made lake, Lake Mead. Circumscribed by canyon walls bearing "bathtub ring" discolouration towering hundreds of feet above the water line, betraying where its water level once stood, the lake is dramatically shrinking. The entire region is in the throes of its worst drought in 1,200 years, calling into question whether the projected population growth in the Desert Southwest is even feasible, given resource

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[1] Alexander I. Filkov et al., "Catastrophic 2019/20 Bushfire Season on Communities and Environment. Retrospective Analysis and Current Trends," *Journal of Safety Science and Resilience* 1, no. 1 (2020): 44; Matthew Cappucci, "The Record-Shattering 2020 Atlantic Hurricane Season Is Over, But the Scars Remain," *The Washington Post*, November 30, 2020, https://www.washingtonpost.com/weather/2020/11/30/record-hurricane-season-2020-ends/; Rhianna Schmunk, "595 People Were Killed by Heat in B.C. this Summer, New Figures from Coroner Show," *CBC*, November 1, 2021, https://www.cbc.ca/news/canada/british-columbia/bc-heat-dome-sudden-deaths-revised-2021-1.6232758; World Meteorological Association, *State of the Global Climate 2021,* WMO-N.1290, (Geneva: World Meteorological Organization, 2022), https://library.wmo.int/doc_num.php?explnum_id=11178; Anthony Leiserowitz et al., "Dramatic Increase in Public Beliefs and Worries About Climate Change," Yale Program on Climate Change Communication, September 27, 2021, https://climatecommunication.yale.edu/publications/dramatic-increase-in-public-beliefs-and-worries-about-climate-change/.

[2] Damian Carrington, "The Anthropocene Epoch: Scientists Declare Dawn of Human-Influenced Age," *The Guardian*, August 29, 2016, https://www.theguardian.com/environment/2016/aug/29/declare-anthropocene-epoch-experts-urge-geological-congress-human-impact-earth.

[3] Paul J. Mackun, "Fast Growth in the Desert Southwest Continues," United States Census Bureau, February 11, 2019, https://www.census.gov/library/stories/2019/02/fast-growth-in-desert-southwest-continues.html.

[4] Meghan Neri, "Staying on Track: UNLV's Population Forecast Continues to Predict More Than 1M More Residents in Southern Nevada," University of Nevada, Las Vegas, August 12, 2022, https://www.unlv.edu/news/release/staying-track-unlvs-population-forecast-continues-predict-1m-more-residents-southern.

constraints.[5] Aside from the problem of water scarcity, rising temperatures, coupled with urban sprawl and its deleterious effects on the environment, such as smog and heat conduction, threaten to make regions like southern Nevada increasingly hostile to human life. This advancing uninhabitability is not going unnoticed by locals.[6]

For policymakers tasked with the challenge of legitimizing the major structural changes needed to decarbonize the economy and mitigate climate change, dramatic weather events are opportunities to galvanize constituencies into supporting more robust, systemic environmental action. As Roman Hoffmann et al. observe, personal experience with extreme climate-related events can significantly affect how people process information about climate change. It becomes less of an esoteric scientific theory and more of a palpable, lived reality. It no longer represents a threat that just affects an abstract "other" to which one has no personal connection.[7] None of this should be taken to mean that policymakers should cynically exploit manifestations of climate change for the purpose of fearmongering. Rather, they can utilize the regrettable frequency of these events as teachable moments to impress upon those who are incredulous about climate change the imminence of the dangers it poses to their way of life. This is an effective way of rebutting so-called "climate skeptics," who advance a narrative that downplays the dangers of climate change or even denies its anthropogenic causation.[8]

There is good reason to suspect that this development is already playing out. As the manifestations of climate change become more difficult to overlook, even conservative political movements – normally more sceptical of climate change than their liberal or left-wing political competitors, and sometimes outright hostile to it as a supposed statist-inspired "hoax" – find themselves confronted with having to advance policy proposals for ameliorating the effects of the changing global climate.[9] Some political conservatives may continue to deny that climate change is anthropogenic. Yet, even though this theory might render these conservatives unenthusiastic about decarbonization schemes, they at least concede that a changing global climate requires responses to mitigate its effects.[10] Fundamentally, the shift in conservative attitudes to climate change, such as in the Republican Party in the US, is generational; younger cohorts are more concerned than older conservatives about climate change and increasingly convinced that it is indeed anthropogenic.[11]

Increases in popular concern over climate change beg the question of whether these changes in attitude may be driven by greater deference to the scientific consensus on climate change, people's personal experience with or awareness of extreme weather events, or a combination of the two.

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[5] John L. Smith, "Stewards of A Broken Climate," University of Nevada, Las Vegas, May 10, 2022, https://www.unlv.edu/news/article/stewards-broken-climate.

[6] Gabrielle Canon, "Record Growth, Record Heat, Record Drought: How Will Las Vegas Weather the Climate Crisis?," *The Guardian*, March 5, 2022, https://www.theguardian.com/us-news/2022/mar/04/las-vegas-population-growth-climate-crisis.

[7] Roman Hoffmann et al., "Climate Change Experiences Raise Environmental Concerns and Promote Green Voting," *Nature Climate Change* 12 (February 2022): 148, 150, https://doi.org/10.1038/s41558-021-01263-8. On decarbonizing, see also Simon Dalby, "Climate Security: Moving NATO—and Canada—Beyond Fossil Fuels," in this volume.

[8] Jessica M. Santos and Irina Feygina, "Responding to Climate Change Skepticism and the Ideological Divide," *Michigan Journal of Sustainability* 5, no. 1 (2017): 9, 12.

[9] John Paul Tasker, "Conservative Delegates Reject Adding 'Climate Change is Real' to the Policy Book," *CBC*, March 20, 2021, https://www.cbc.ca/news/politics/conservative-delegates-reject-climate-change-is-real-1.5957739; Raul P. Lejano, "Ideology and the Narrative of Climate Skepticism," *Bulletin of the American Meteorological Society* 100, no. 12 (December 2019): ES417.

[10] Charles W. Schmidt, "A Closer Look at Climate Change Skepticism," *Environmental Health Perspectives* 118, no. 12 (2010): A536-A540.

[11] Cary Funk and Alec Tyson, "Millennial and Gen Z Republicans Stand Out from Their Elders on Climate and Energy Issues," Pew Research Center, June 24, 2020, https://www.pewresearch.org/fact-tank/2020/06/24/millennial-and-gen-z-republicans-stand-out-from-their-elders-on-climate-and-energy-issues/.

Since the scientific consensus on climate change has been established for at least two decades, and the Intergovernmental Panel on Climate Change (IPCC) has existed since 1988, it is logical to deduce that more recent shifts in popular attitudes to the reality of climate change are attributable to people's personal exposure (either locally or through social media) to climate events.[12] This would comport with the aforementioned trend of young people expressing less scepticism about the danger of anthropogenic climate change than older generations; youth are far more engaged with social media than their elders.[13] Stefan Stieglitz et al. argue that social media has become a "sense-making" heuristic that twenty-first century humanity uses to process extreme events.[14] Although social media exposure gets young people engaged in climate-related causes – as seen in youth-led movements aimed at influencing global climate action – it has also contributed to a rise in "climate anxiety" and "eco-anxiety" among the young, such is its psychological effectiveness.[15]

People do not need a sophisticated scientific understanding of climate change before expressing concern about its repercussions.[16] A 2016 study examined the relationship between peoples' concerns about climate change and their levels of knowledge of climate science. The subjects' knowledge was determined using three scales: their comprehension of the causes of climate change, the physical properties of climate change, and the effects of climate change.[17] The results of the study indicated that understanding the scientific mechanism of climate change had a negligible effect on peoples' level of concern, a conclusion supported elsewhere.[18] However, knowledge of the causes and consequences of climate change were positively associated with heightened concern about it.[19]

The ability of most people to connect the dots between knowledge of the anthropogenic causes of climate change and its dramatic effects in the form of dramatic events such as melting polar ice caps, rising sea levels, and more frequent floods has profound implications for their support for policies aimed at climate change mitigation. For example, it seems that local extreme weather events precipitate changes in the voting habits of constituents. Hoffmann et al. determined that extreme weather events across an array of European states generated an increase in reported popular concerns over climate change and the translation of these concerns into upticks in votes cast for Green parties. Extreme heat and dry spells were particularly associated with this trend, as opposed to other manifestations of climate change, such as extreme cold weather events. The authors surmise that the durability of the outdated phrase "global warming" explains people's association of heat-related events with climate change. Moreover, the relationship between heat, dry

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[12] Cary Funk and Brian Kennedy, "For Earth Day 2020, How Americans See Climate Change and the Environment in 7 Charts," Pew Research Center, April 21, 2020, https://www.pewresearch.org/fact-tank/2020/04/21/how-americans-see-climate-change-and-the-environment-in-7-charts/; Mark Lynas, Benjamin Z. Houlton, and Simon Perry, "Greater Than 99% Consensus on Human Caused Climate Change in the Peer-Reviewed Scientific Literature," Environmental Research Letters 16, no. 11 (2021): 2, 6. Some research brings into question exactly how widespread knowledge of the scientific consensus on climate change is. See Santos and Feygina, "Responding to Climate Change Skepticism and the Ideological Divide," 14-15.

[13] "Social Media Fact Sheet," Pew Research Center, April 7, 2021, https://www.pewresearch.org/internet/fact-sheet/social-media/.

[14] Stefan Stieglitz et al., "Sense-Making in Social Media During Extreme Events," *Journal of Contingencies and Crisis Management* 26, no. 1 (2017): 4.

[15] Sarah Parry, Sofi Rose McCarthy, and Jennie Clark, "Young People's Engagement with Climate Change Issues through Social Media – A Content Analysis," *Child and Adolescent Mental Health* 27, no. 2 (2022): 30-31.

[16] Santos and Feygina, "Responding to Climate Change Skepticism and the Ideological Divide," 8.

[17] Jing Shi et al., "Knowledge as a Driver of Public Perceptions about Climate Change Reassessed," *Nature Climate Change* 6 (April 2016): 761, https://doi.org/10.1038/nclimate2997.

[18] Santos and Feygina, "Responding to Climate Change Skepticism and the Ideological Divide," 8.

[19] Hoffmann et al., "Climate Change Experiences Raise Environmental Concerns and Promote Green Voting," 151.

spells, concern over climate change, and voting for Green parties was higher in northern European countries compared to those in the south. The reason for this discrepancy might be that the residents of northern countries, who are less accustomed to hot weather, are more shaken by it.[20] This underscores the subjective, experiential factor behind increases in popular concern over climate change.

With the accession of Finland and Sweden to NATO, it can be expected that those northern European countries' concerns over climate change – which exceed those of most other NATO members – will be reflected in Brussels' policies, shifting NATO to prioritize climate security even more sharply than it has in recent years, further "Europeanizing" the priorities of the alliance.[21] NATO has signalled in its 2022 Strategic Concept its intention to become "the leading international organization when it comes to the impact of climate change on security."[22] NATO is an important forum for collaboration among like-minded states, as per Article 4 of the Washington Treaty, which grants members broad latitude to consult with one another whenever any member's "security" is "threatened."[23] In the case of climate change, all members face risks that can only be overcome by collective action.

Given that NATO members affirm democratic governance in the preamble to their Treaty obligations, it is imperative that they legitimate their policies in the eyes of their respective constituencies.[24] The increase in extreme weather events offers policymakers an opportunity to harness broad democratic support for decarbonization and climate change mitigation measures as security imperatives. Brussels should work to coordinate NATO members' messaging to their respective populations, using dramatic weather events to emphasize the security threat posed by climate change.

NATO states must utilize extreme events to shape the narrative that leads to positive policy outcomes. This is no different than appealing to the recent Russian invasion of Ukraine as an occasion to emphasize the importance of military spending and readiness to deter aggression as per Article 3 of the Washington Treaty.[25] Winning hearts and minds is part and parcel of good policymaking. The outcome of NATO intervention in the popular discourse surrounding climate change will be a more stable world. ■

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[20] Hoffmann et al., "Climate Change Experiences Raise Environmental Concerns and Promote Green Voting," 151-153.
[21] Hoffmann et al., "Climate Change Experiences Raise Environmental Concerns and Promote Green Voting," 149; "NATO Releases Its Climate Change and Security Impact Assessment," North Atlantic Treaty Organization, June 28, 2022, https://www.nato.int/cps/en/natohq/news_197241.htm.
[22] NATO, *NATO 2022 Strategic Concept* (2022), 11, https://www.nato.int/strategic-concept/.
[23] "The North Atlantic Treaty, Washington D.C., 4 April, 1949," North Atlantic Treaty Organization, last modified April 10, 2019, https://www.nato.int/cps/en/natolive/official_texts_17120.htm.
[24] "The North Atlantic Treaty."
[25] "Funding NATO," North Atlantic Treaty Organization, last modified November 9, 2022, https://www.nato.int/cps/en/natohq/topics_67655.htm; "The North Atlantic Treaty."

The Green Arctic Regime: The Pivotal Moment

Mariia Kobzeva

The suspension of the Arctic Council's work in the aftermath of the conflict in Ukraine has complicated cooperation in the region.[1] The Arctic regime, as the set of norms, principles, rules, and decision-making procedures focused on cooperation in the High North, is approaching a turning point. Currently, there is no certainty among experts and politicians on whether the international regime in the region will keep its effectiveness and scope. The trends show a clear dividing line between the Arctic 7, Scandinavia plus North America, and Russia, the Arctic 1.[2] Finland and Sweden joining NATO has underscored this divide in regional security. Such a development presents challenges for a green transition in the Arctic, where "green" includes low-carbon, resource-efficient, and socially inclusive economic activity.[3] At this point, the author wonders if the established Green Arctic Regime (GAR) can guide cooperation between all the actors amid the underlying tensions.

The shared concerns about climate and nature provide obvious reasons to turn the Arctic into a zone of peace. Problems that can only be solved by joint international efforts require putting political differences aside. Recent global developments have challenged this assumption. The ongoing pandemic did not unite international efforts. The "green" regimes, including in the Arctic, are seemingly following the same path. At this point, it is important to evaluate the GAR's achievements and weak points. For that, this paper applies the regime theory approach, which focuses on defining regime components and understanding the trends in their development. This essay hypothesizes that the split-up parts will remain coherent in their norms and principles. This will provide the groundwork for the future mutual recognition of regulations set within formally independent regimes.

What is the GAR?

In this discussion, the author refers to Stephen Krasner's views on international regimes and Oran Young's works regarding regimes and regime complexes. According to Krasner and Young, regimes encompass norms, principles, rules, and decision-making procedures that may be enhanced by certain institutions.[4] Regime complexes unite several coherent regimes that address one area of international affairs.[5]

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[1] "Joint Statement on Arctic Council Cooperation Following Russia's Invasion of Ukraine," Media Note, Office of the Spokesperson, US Department of State, March 3, 2022, https://www.state.gov/joint-statement-on-arctic-council-cooperation-following-russias-invasion-of-ukraine/.

[2] Rasmus Gjedssø Bertelsen, "Arctic Order(s) Under Sino-American Bipolarity," in *Global Arctic: An Introduction to the Multifaceted Dynamics of the Arctic*, eds. Matthias Finger and Gunnar Rekvig, 463-481 (Cham: Springer International Publishing, 2022), https://doi.org/10.1007/978-3-030-81253-9_24.

[3] "Green Economy," UN Environment Programme, accessed December 20, 2022, https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy.

[4] Stephen D. Krasner, *Power, the State, and Sovereignty: Essays on International Relations* (Florence: Routledge, Taylor & Francis Group, 2009), https://doi.org/10.4324/9780203882139; Oran R. Young, "International Regimes: Problems of Concept Formation," *World Politics* 32, no. 3 (1980): 331-356, https://doi.org/10.2307/2010108.

[5] Oran Young, Jiang Yang, and Andrei Zagorski, "The 'New' Arctic as a Zone of Peaceful Competition," *Polar Perspectives* no. 11 (Wilson Center, March 2022), https://www.wilsoncenter.org/publication/polar-perspectives-no-11-new-arctic-zone-peaceful-competition.

Regimes allow actors to set regulations and standards, as well as to lead the decision-making process.[6] To be operational, regimes need transparency between actors to maintain trust. For that, regimes gather knowledge and lay the groundwork for humanitarian, business, and diplomatic ties. As a result, regimes determine a shared agenda and set behaviour patterns for cooperation.[7]

The Arctic regime is, in fact, a "regime complex"; that is, the scope of those international regimes focused on or applicable to the activities of the Circumpolar North.[8] Within a regime complex, all the components align with its crucial norms and regulations. All the regime's parts should coordinate their efforts to avoid duplication and contradictions in regulation procedures. This ensures the regime's effectiveness.[9] In the troublesome event of a regime split up, the principal question is about norms and principles that shape the core of the new regimes. If they are coherent, it promises effective interaction. If not, the new regimes will wrest authority and legitimacy from each other. In both cases, though, the competition that earlier unfolded between actors within one regime will turn into a contest between several regimes. The latter are usually more legitimately powerful than the individual states composing them.[10]

The Arctic regime (complex) is enforced through international law and a set of international and regional forums, with the Arctic Council a key negotiating platform. This paper examines its "green" dimension: a set of formal and informal regulations on human activities tackling climate change and environmental pollution. The GAR is tuned to norms and principles established by the UN: its charter, Sustainable Development Goals, Framework Convention on Climate Change (UNFCCC), agreements, and laws supported by most states in the world.[11] Those norms and principles guide the decision-making process in the Arctic and result in rulemaking, most notably the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic and the Agreement to prevent unregulated fishing.[12]

Since the establishment of the Arctic Council as the main body for collaboration on green issues, the GAR has achieved outstanding progress from literally zero collaboration between the Arctic nations to the set of internationally binding agreements, shared strategic political and economic goals, knowledge distribution, and the global reformation of industries and activities responsible for climate change and pollution in the Arctic. The Russian chairmanship program for 2021-2023, created in line with the previous work of the Arctic Council, included sustainable Arctic development as a priority.[13] In addition, the GAR shaped national strategies. All the Arctic states amended national policies to contribute to environmental protection and set milestones for carbon

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[6] Marc A. Levy, Oran R. Young, and Michael Zürn, "The Study of International Regimes," *European Journal of International Relations* 1, no. 3 (1995): 267-330, https://doi.org/10.1177/1354066195001003001.

[7] Jon Hovi et al., "Climate Change Mitigation: A Role for Climate Clubs?," *Palgrave Communications* 2, no. 1 (May 2016): 1-9, https://doi.org/10.1057/palcomms.2016.20.

[8] Oran R. Young, "Building an International Regime Complex for the Arctic: Current Status and Next Steps," *The Polar Journal* 2, no. 2 (December 2012): 391-407, https://doi.org/10.1080/2154896X.2012.735047; Young, "International Regimes," 331-356.

[9] Hovi et al., "Climate Change Mitigation"; Oran R. Young, "Effectiveness of International Environmental Regimes: Existing Knowledge, Cutting-Edge Themes, and Research Strategies," *Proceedings of the National Academy of Sciences* 108, no. 50 (2011): 19853-19860, https://doi.org/10.1073/pnas.1111690108.

[10] Krasner, *Power, the State, and Sovereignty*; Stacie E. Goddard, *When Right Makes Might: Rising Powers and World Order* (Ithaca, NY and London: Cornell University Press, 2018), https://library.oapen.org/handle/20.500.12657/25328.

[11] Remi Moncel and Harro van Asselt, "All Hands on Deck! Mobilizing Climate Change Action beyond the UNFCCC," *Review of European Community & International Environmental Law* 21, no. 3 (2012): 163-176, https://doi.org/10.1111/reel.12011.

[12] Young, Yang, and Zagorski, "The 'New' Arctic as a Zone of Peaceful Competition."

[13] Arctic Council, *Russia's Chairmanship Programme for the Arctic Council 2021-2023* (2021), https://oaarchive.arctic-council.org/handle/11374/2646.

neutrality. Both the US and Russia adopted the new vision after years of political scepticism.[14] Thus, the Arctic actors elaborated rules and decisions that oblige them to reach the green and sustainable development goals.

Green economy implies sustainable development and the reduction of emissions to mitigate climate change. International initiatives at all levels, including the UN, prompted the green trend. This translated into the competitive elaboration of new standards, certifications, regulatory instruments, and technological and market strategies unfolding in the Arctic and in countries outside the region.[15] However, new green standards create issues of technical compatibility between the individual actors. It is impossible for the states to neglect those standards in their activities because they are all included in the global market and environment. The speed for implementing rules and standards as fast and efficiently as possible becomes a matter of competition, promising the regulatory advantage. The lagging actors will have to follow the rules set by others.

Options for the GAR's evolution

Why does the GAR's pause envisage the risk of its fade-out? The answer is that while the GAR is being dysfunctional, market needs and environmental and climate issues are not going to disappear. The demand to advance the regulatory environment will naturally lead to the emergence of alternative regimes. Following the split up of the A7 and A1, further interaction in the Arctic will likely witness the GAR's fragmentation into green "clubs." In a worse scenario, it could result in green protectionism, which could boost the national markets to the detriment of the international economy.[16] Assuming that the de-globalized energy order with deeper economic nationalism sketched by Jason Bordoff and Meghan O'Sullivan is on its way, the GAR will come after this decoupling scenario.[17]

The decision of the A7 would not seem so worrisome if there were no economic trends behind it. Amid the wave of sanctions against Russia, most of the American and European stakeholders, investors, and business partners withdrew from Russian Arctic initiatives or put operations on hold. One of the last survivors, the French corporation TotalEnergies, which focused on gas and LNG production for the European green transition, promised to stop oil and gasoil purchases from Russia. TotalEnergies has struggled to balance its business interests and political imperatives. The company is a partner in Yamal LNG and Arctic LNG 2 projects with a Russian major stake and substantial Chinese investments. In recent years, the French corporation significantly contributed to promoting green trends and advancing industry standards for the Russian Arctic. If the company manages to retain its minority stake in the Russian Arctic, it may

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[14] "Fact Sheet: President Biden Takes Bold Executive Action to Spur Domestic Clean Energy Manufacturing," The White House, June 6, 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/06/fact-sheet-president-biden-takes-bold-executive-action-to-spur-domestic-clean-energy-manufacturing/; "Russia Striving to Be Carbon Neutral No Later than 2060, Says Putin," *Reuters*, October 13, 2021, https://www.reuters.com/business/environment/russia-striving-be-carbon-neutral-no-later-than-2060-says-putin-2021-10-13/.

[15] Tim Rühlig, *China, Europe and the New Power Competition over Technical Standards* (The Swedish Institute of International Affairs, 2021), https://www.ui.se/globalassets/ui.se-eng/publications/ui-publications/2021/ui-brief-no.-1-2021.pdf.

[16] Hovi et al., "Climate Change Mitigation."

[17] Jason Bordoff and Meghan L. O'Sullivan, "The New Energy Order: How Governments Will Transform Energy Markets," *Foreign Affairs*, July/August 2022, https://www.foreignaffairs.com/articles/energy/2022-06-07/markets-new-energy-order.

emerge as the only European company with access to the Russian energy market.[18] In the upcoming GAR transformation, the importance of this investment is impossible to overestimate.

Another challenging factor is the security split up. Since the Arctic Council's foundation, security issues have remained outside of its framework. However, during the Cold War, security was the decisive reason for the lack of cooperation. It is fair to say that the A7 rallying under the auspices of NATO presents a long-term determinant for the Arctic green transition. Further security decoupling between the A7 and A1 could limit opportunities for inclusive cooperation in the Arctic and undermine the mitigation of climate change. Whether NATO can play a constructive role in the process depends on how it implements goals for tackling climate change and addresses Russia as a threat and China as a challenge, as determined in the recent strategic concept.[19]

In addition, the GAR's transformation brings forward a principal issue: the unfolding competition between the EU and China as the two normative powers and non-regional actors in the Arctic.[20] Advanced technological capacities allowed the EU to open alternative energy markets and launch the initial standards within them. In response, the suppliers, including Russia, tried to secure their foothold in those markets via the fast development of green profiles to satisfy European customers.[21]

At the same time, economies like China that lacked the capacity to meet the emissions requirements immediately opposed the EU's intransigent approach. The principle of common but differentiated responsibilities and respective capabilities was one of the cornerstones of its ambitious plan for reaching carbon neutrality by 2060, which is ten years after the milestone set by the EU.[22] Being a country that produces the largest amount of greenhouse gas emissions, China has already turned into a leader in advanced renewable technologies.[23] It also remains an important partner for the Russian Arctic's sustainable development. In this view, the implementation of European, Chinese, and Russian goals for net-zero is inextricably linked to the GAR functioning. If the Arctic regime loses channels for sharing knowledge and open monitoring, success will be unlikely.[24]

Conclusion

The GAR's suspension may be a sign of upcoming reform or the split up into new regimes. The achievements elaborated in the shared agenda and practical actions to overcome environmental and climate challenges in the Arctic set the starting point for further decisions. Currently, the Arctic Council *de jure* remains a key platform for negotiations on green issues, as well as for knowledge and data exchange. It also keeps its normative value for all parties, including A7 and A1. From this

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[18] TotalEnergies, *At a Glance 2022: Energy Is Reinventing Itself, and So Are We!* (Courbevoie, France: TotalEnergies, May 2022), https://totalenergies.com/sites/g/files/nytnzq121/files/documents/2022-05/TE_essentiel_2022_EN.pdf; "Russia: TotalEnergies Shares Its Principles of Conduct, " TotalEnergies, March 22, 2022, https://totalenergies.com/media/news/press-releases/russia-totalenergies-shares-its-principles-conduct.

[19] "Madrid Summit Declaration Issued by NATO Heads of State and Government," North Atlantic Treaty Organization, June 29, 2022, https://www.nato.int/cps/en/natohq/official_texts_196951.htm.

[20] Finland, Sweden, and Denmark are Arctic states and EU members (Greenland as the High North part of Denmark is not in the EU). The other 24 members of the union are outside the Arctic.

[21] Ian Barlow, "Russia's Hydrogen Energy Strategy," Center for Strategic and International Studies, October 14, 2021, https://www.csis.org/analysis/russias-hydrogen-energy-strategy.

[22] "China headed towards carbon neutrality by 2060; President Xi Jinping vows to halt new coal plants abroad," *UN News*, September 21, 2021, https://news.un.org/en/story/2021/09/1100642.

[23] "Greenhouse Gas (GHG) Emissions," Climate Watch, accessed December 20, 2022, https://www.climatewatchdata.org/ghg-emissions.

[24] Stine Aakre et al., "Incentives for Small Clubs of Arctic Countries to Limit Black Carbon and Methane Emissions," *Nature Climate Change* 8, no. 1 (January 2018): 85-90, https://doi.org/10.1038/s41558-017-0030-8.

perspective, proceeding with these activities is the least costly and most effective way to move toward Arctic actors' green goals. This option is compatible even in the case of the emergence of new Arctic "green clubs," which is probably inevitable in the years to come due to political discord between A7 and A1. If they remain oriented on the norms and principles jointly established so far, such a development will be temporary. This will ensure the chance to resume a better version of the GAR in the future. The efficiency of coordination, though, will be significantly disturbed due to the duplication of the functions of the "clubs" and the ongoing competition for setting standards for new and advanced technologies for the green transition.

The more damaging scenario for the GAR would be a drastic split up with a lack of interaction between the Arctic clubs, which would look like a resumption of the Cold War Arctic regime. NATO's current expansion is certainly capable of contributing to this outcome. Such a scenario would bring short-term political triumphs inside the clubs and mid-term global economic stagnation. From the regime theory perspective, though, the most difficult issue would be in the normative divergence with the current GAR and the subsequent normative competition between its parts. It means that in the future, standards that were set independently in different clubs will hamper mutual cooperation between regimes. In practice, this scenario envisages a wide range of troubles, including in the security field. It will likely hinder the attempts of reaching Arctic actors' carbon neutrality in any reasonable time frame. In this regard, the author suggests that the value of regimes for the international system requires an in-depth review to improve further decision-making policies.

History shows that international affairs alternate between periods of peace and confrontation. Similar questions of how to move forward and find ground for cooperation will inevitably arise in the future. The key issue will be the unknown set of normative advantages that actors would hold by that time. The year 2050 will probably be a representative checkpoint to learn if the GAR has been sustained. ■

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Climate and Security in the Western Balkans: Resilience through Cooperation?

Emma Hakala

Climate change constitutes a significant threat in the Western Balkans, which consists of Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Serbia, and Kosovo.[1] It is expected to increase the risk of extreme weather events, such as droughts, heat waves, and intense precipitation, posing a risk to human lives and health, livelihoods, and many basic functions of society, like energy provision or water infrastructure.[2] The regional impacts of climate change are already visible. For example, the severe floods in the spring of 2014 left at least 60 people dead and some 22,500 displaced.[3] Moreover, like the rest of the world, the Balkan countries are exposed to geopolitical and societal consequences originating across their national borders.[4]

Despite the threats brewing on the horizon, climate change has so far not been widely integrated into security policy in the Western Balkans. However, the potential for future work does exist as the issue has, for example, been broached in disaster risk-reduction activities.[5] Many of the climate-related threats will likely be shared by the Western Balkan countries, so they could benefit from broader cooperation and coordination on the issue. This chapter will explore some of the expected climate security impacts in the Western Balkans, using a categorization of direct, cascading, and transition impacts. It will also suggest ways to better prepare for these impacts, both at the country-level and by leveraging international cooperation with partners such as NATO.

Climate change and security: Identifying the risks

To gain a more comprehensive picture of the climate security impacts, the following sections will rely on a categorization developed by Hakala et al., dividing climate security into direct, cascading, and transition impacts. *Direct impacts* entail changes in the physical environment and their consequences for human health and critical infrastructure, such as increasingly intense storms that have the potential to cause extensive power outages. *Cascading impacts* occur when environmental changes are combined with socio-economic and geopolitical factors. For example, extreme weather in the vicinity of critical transportation hubs may cause disruptions in supply chains at the global level. *Transition impacts* result from the mitigation of and adaptation to climate change. These can occur due to the harmful side effects of individual climate policy measures or through wider, systemic disruptions stemming from decarbonization.[6]

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[1] This designation is henceforth used without prejudice to positions on status, and is in line with UNSCR 1244 (https://peacemaker.un.org/kosovo-resolution1244) and the ICJ Opinion on the Kosovo declaration of independence (https://www.icj-cij.org/en/case/141).

[2] Regional Cooperation Council, *Study on climate change in the Western Balkans region* (RCC, 2018), https://www.rcc.int/pubs/62/recovering-from-covid-19-how-and-with-whom.

[3] World Health Organization, "Floods in the Balkans: Bosnia and Herzegovina, Croatia and Serbia," Situation Report No. 3, June 13, 2014, 1, https://www.euro.who.int/__data/assets/pdf_file/0004/252094/Balkan-Floods-Sitrep-3-rev.pdf.

[4] Emma Hakala et al., "Northern Warning Lights: Ambiguities of Environmental Security in Finland and Sweden," *Sustainability* 11, no. 8 (2019): 2228.

[5] Emma Hakala, "Securitisation of environment and international organisations in the post-conflict Western Balkans" (PhD diss., University of Helsinki, 2018).

[6] Emma Hakala et al., "Climate change and Finnish comprehensive security: Insights into enhanced preparedness," FIIA Briefing Paper 325 (December 2021), https://www.fiia.fi/julkaisu/climate-change-and-finnish-comprehensive-security.

Security impacts of climate change in the Western Balkans

Direct impacts

Climate change will increase flooding everywhere in the Balkans, but particularly around the Rivers Danube, Sava, and Tisza.[7] Snowmelt and heavy rainfall are usually the initial causes for floods, but their intensity is increased by unsustainable land-use patterns. Floods threaten human lives as well as critical functions in society. They also often inflict widespread damage. Meanwhile, storms are expected to become more frequent and intense throughout the Western Balkans.[8] Although their impact may be more spatially limited than in the case of floods, they are also more unpredictable due to their sudden character.

According to some studies, the Western Balkans will be one of the world's so-called hot spots in terms of impacts if climate change continues unchecked.[9] This could lead to significant increases in the frequency of heat waves, droughts, and wildfires. Extreme heat directly threatens lives, as evidenced during a heat wave in the Serbian capital of Belgrade in 2007, when the mortality rate of elderly people increased by 76 per cent.[10] Both extreme heat and drought also harm agricultural production, thereby threatening food security and livelihoods.[11] Meanwhile, wildfires, which are already becoming more frequent in the Balkans, may lead to considerable losses of assets and livelihoods, not to mention considerably damaging the ecosystems through habitat loss and soil erosion.[12]

Cascading impacts

Climate change is likely to increase the unpredictability of supply chains. Global studies suggest that new insecurities will be felt around the world as the risk of disruptions affecting crucial hubs is expected to rise.[13] Such events especially affect countries that are relatively dependent on imports, as

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[7] World Bank Group, "Turn Down the Heat: Confronting the New Climate Normal – The Climate Challenge for the Western Balkans," (World Bank Group, 2018), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/494741468189532505/turn-down-the-heat-confronting-the-new-climate-normal-the-climate-challenge-for-the-western-balkans.

[8] United Nations Development Programme (UNDP), *Risk-Proofing the Western Balkans: Empowering People to Prevent Disasters*, Human Development Report 2016 (Sarajevo: UNDP in Bosnia and Herzegovina, 2016), https://www.undp.org/bosnia-herzegovina/publications/human-development-report-2016-risk-proofing-western-balkans-empowering-people-prevent-disasters.

[9] World Bank Group, "Turn down the heat" 4.

[10] Dragan C. Bogdanović et al., "The impact of the July 2007 heat wave on daily mortality in Belgrade, Serbia," *Central European Journal of Public Health* 21, no. 3 (2013): 140-145.

[11] USAID, "Climate Risk Profile Serbia," Fact Sheet, 2017, https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID_Climate%20Change%20Risk%20Profile_Serbia.pdf.

[12] Björn Alfthan et al., *Outlook on climate change adaptation in the Western Balkan mountains* (Vienna, Arendal, and Sarajevo: United Nations Environment Programme, GRID-Arendal, and Environmental Innovations Association, 2015), https://www.weadapt.org/sites/weadapt.org/files/2017/june/balkanmountains_smd.pdf.

[13] Rob Bailey and Laura Wellesley, *Chokepoints and Vulnerabilities in Global Food Trade* (London: Chatham House/The Royal Institute of International Affairs, June 2017), https://www.chathamhouse.org/sites/default/files/publications/research/2017-06-27-chokepoints-vulnerabilities-global-food-trade-bailey-wellesley-final.pdf.

is the case in the Western Balkans countries.[14] Some studies suggest, for instance, that they currently are more vulnerable to disruptions in food trade than the EU.[15]

Climate change is also expected to impact global migration patterns. While this will primarily affect the security of the potentially hundreds of millions of people who are forced to leave their homes, there will also be implications en route and at the final destinations including the Western Balkans.[16] This may increase pressure on social services, border controls, and other government agencies. Such implications were already evident during the so-called refugee crisis in 2015, when about 764,000 people migrated through Western Balkans towards Northern and Western Europe.[17]

Global health risks are also expected to be aggravated by climate change. Along with biodiversity loss, it will increase the risk of epidemics.[18] In the future, the Western Balkan countries will also suffer from more frequent outbreaks of vector-borne diseases, such as malaria, dengue fever, and the West Nile virus. Serbia already experienced an increase in the incidence of West Nile virus during the 2010s.[19]

Transition impacts

The global energy transition, which is already taking place, may create geopolitical risks for the Western Balkans, as they all have relatively carbon-intensive economies at present. A delayed or failed energy transition could harm these countries' economic competitiveness and hinder their international ambitions, such as the EU accession path. The whole region is also relatively dependent on Russian energy imports, especially gas.[20] This has been revealed to be particularly risky, especially after Russia's attack on Ukraine, as the energy-dependent countries have been left to balance their reaction to the war with their need to secure an alternative energy supply.[21]

Meanwhile, the sustainability transition can also generate local-level disputes. For instance, plans to build more hydropower in order to provide fossil-free energy have already been met with heightening opposition in the Western Balkans. In 2019, environmental NGOs organized joint

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[14] Milica Uvalić and Vladimir Cvijanović, *Towards A Sustainable Economic Growth and Development in the Western Balkans* (Zagreb: Friedrich-Ebert-Stiftung, March 2018), https://library.fes.de/pdf-files/bueros/kroatien/14688.pdf.

[15] Bojan Matkovski et al., "Determining Food Security in Crisis Conditions: A Comparative Analysis of the Western Balkans and the EU," *Sustainability* 12, no. 23 (2020): 9924.

[16] Sarah Opitz et al., *Climate change, migration and displacement: The need for a risk-informed and coherent approach*, Report (London and New York: Overseas Development Institute and UNDP, November 2017), https://cdn.odi.org/media/documents/11874.pdf.

[17] Matteo Astuti et al., *The Balkan route: Migrants without rights in the heart of Europe* (RiVolti ai Balcani, June 2020), https://www.asgi.it/wp-content/uploads/2020/09/The-Balkan-Route-Report-2020-by-_-Rivolti-ai-Balcani_-italian-network.pdf.

[18] IPBES, *Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services* (Bonn: IPBES secretariat, 2018), https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf.

[19] Tamaš Petrović et al., "Methodology and results of integrated WNV surveillance programmes in Serbia," *PLOS One* 13, no. 4 (2018), https://doi.org/10.1371/journal.pone.0195439.

[20] Peter Sanfey and Jakov Milatovic, *The Western Balkans in transition: diagnosing the constraints on the path to a sustainable market economy* (London: European Bank for Reconstruction and Development, February 2018), 36-37, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiXpK7KoIj8AhVBiIsKHU--BZAQFnoECAwQAQ&url=https%3A%2F%2Fwww.ebrd.com%2Fdocuments%2Feapa%2Fwestern-balkans-summit-2018-diagnostic-paper.pdf&usg=AOvVaw3CZn-CiusN0W7W07zixUZ5.

[21] Jason Bordoff and Meghan L. O'Sullivan, "The Ukraine Crisis Offers a Rare Chance for Energy and Climate Cooperation," *Foreign Policy*, April 12 2022, https://foreignpolicy.com/2022/04/18/ukraine-russia-war-oil-energy-climate-gas-prices/.

protests in Tirana, Belgrade, and Podgorica under the title "Action Weeks for Balkan Rivers."[22] Other protests have been organized locally, especially near potential construction sites.[23] The opponents argue that despite its status as a renewable status and carbon-free energy source, hydropower has highly damaging impacts on river ecosystems, biodiversity, and local livelihoods.[24]

In addition, all countries face systemic challenges of governing the decarbonization process as balancing fast-paced effective action and often slow-moving democratic processes can be hard to achieve. In the Western Balkans, this particularly pertains to the significant role of the coal industry, which is not only a major source of energy but also a considerable employer. The energy transition will mean increasing unemployment in this sector, as is already happening in Serbia and Montenegro.[25] Just transition mechanisms can help to alleviate the consequences by providing retraining opportunities. However, the societal significance of coal plants in the close communities extends far beyond merely providing a job, as many cultural and social practices are shaped around the coal industry.[26] Coal plant closures are therefore likely to lead to some degree of social insecurity.

Seizing opportunities for climate security in the Western Balkans

Climate change underlines the need to enhance foresight and create early warning mechanisms to ensure preparedness against multiple hazards. Some efforts have already been taken in the Western Balkans with regard to direct impacts like floods, storms, and wildfires. For example Albania, Croatia, Montenegro, and Serbia have invested in improving their early warning systems. Yet more remains to be done to further streamline crisis preparedness.[27] Moreover, additional work is required to better understand the socio-economic and environmental linkages behind cascading and transition impacts and to increase capabilities to anticipate them.

To that end, the Western Balkans would benefit from deeper regional coordination and cooperation on climate security. The impacts that they are facing are similar, and often shared across national borders. In particular, there is a need for region-wide monitoring and early-warning mechanisms specifically focusing on climate-related risks, originating from within the region and outside of it. In addition, the countries should aim for enhanced information sharing on disaster preparedness with regard to crises like floods and wildfires.

The consequences of climate change in the Western Balkans only emphasize NATO's relevance in the region. The kinds of impacts outlined in the previous sections have the potential to imperil regional security. NATO therefore has an added interest in cooperating with the Western Balkan countries to enhance their climate security. While the Western Balkan countries apart from Albania, Montenegro, and North Macedonia are not NATO members, climate security cooperation could also yield opportunities for NATO to build new linkages and deepen its existing relations in the region.

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[22] Mladen Lakic, "Balkan Eco-Activists Protest Against Hydro-Power Plants," *BalkanInsight*, June 10, 2019, https://balkaninsight.com/2019/07/10/balkan-eco-activists-protest-against-hydro-power-plants/.
[23] Igor Vejnovic, *Broken Rivers: The impacts of European-financed small hydropower plants on pristine Balkan landscapes* (CEE Bankwatch Network, December 2017), https://bankwatch.org/wp-content/uploads/2017/12/broken-rivers-bankwatch-study-on-hydropower-in-the-balkans-merged.pdf.
[24] Guy De Launey, "'They dammed everything' - Bosnia's hydropower gone sour," *BBC*, September 10, 2018, https://www.bbc.com/news/world-europe-45470309.
[25] Ioana Ciută and Pippa Gallop, *The Great Coal Jobs Fraud - 2018 Update* (CEE Bankwatch Network, June 2018) https://bankwatch.org/wp-content/uploads/2020/12/position-JT-WB-UA.pdf.
[26] Vanessa Castan Broto, "Employment, environmental pollution and working class life in Tuzla, Bosnia and Herzegovina," *Journal of Political Ecology* 20, no. 1 (2013): 1-13.
[27] UNDP, *Risk-Proofing the Western Balkans.*

As NATO's Climate Change and Security Action Plan from 2021 points out, the organization has for some time been working on environmental and climate challenges and can therefore share lessons learned both for member states and partners. NATO has already been working on emergency response mechanisms, including natural disaster preparedness, in Bosnia and Herzegovina, Croatia, Montenegro, and North Macedonia.[28] The organization could build upon this existing work and expand it to other climate security issues. For instance, climate security risk and resilience assessments, as well as advice on the security situation, could considerably benefit the Western Balkan countries.[29] In addition, NATO's extensive work on civil preparedness could further complement the disaster risk reduction activities carried out in the Balkans.[30] Overall, climate change is becoming an essential aspect of comprehensive security in the Western Balkans as elsewhere, and multilateral cooperation will benefit all parties in better preparing for its impacts. ■

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[28] Ibrahim Al-Marashi and Amar Causevic, "NATO as a Climate Change Alliance Treaty Organization," in this volume; "NATO Agency supports emergency response project in Western Balkans," NATO Communications and Information Agency, last modified May 11, 2022, https://www.ncia.nato.int/about-us/newsroom/nato-agency-supports-emergency-response-project-in-western-balkans.html.
[29] "NATO Climate Change and Security Action Plan," North Atlantic Treaty Organization, last modified June 14, 2021, https://www.nato.int/cps/en/natohq/official_texts_185174.htm.
[30] "Resilience, civil preparedness and Article 3," NATO, last modified September 20, 2022, https://www.nato.int/cps/en/natohq/topics_49158.htm.

Climate Change in Africa and its Impact on Global Security

Ebimboere Seiyefa

Droughts, desertification, hurricanes, global warming, and other climate change-induced events have far-reaching effects. Cyclones in Southern Africa, wildfires in Australia, droughts in East Africa, and floods in South Asia have led to the loss of lives, displacement of people, and economic disruption. It is pertinent to underscore the adverse impacts of climate change across countries; a key consequence is the spill-over effect of climate change outcomes beyond the borders of Africa. Hence, the occurrences of politically motivated conferences on the impact of climate change on global security. For example, the United Nations Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change are clear indications of the securitization of climate change at the global level. Likewise, to ensure the security of its member states and allies, NATO has developed its Climate Change and Security Action Plan to respond effectively to the identified adverse impacts of climate change. This is a useful tool whose advantages are not limited to the security of NATO and its allies, but also extend to the global community. Research has revealed that climate change serves as a trigger, or a threat multiplier, by adding stress to already fragile environments.[1] Consequently, this essay examines the manifestations of climate change in Africa and its impact on global security. Emphasis is placed on the increases in transnational organized crime and irregular migration.

Climate Change in Africa

Climate change is currently adding to existing insecurity occurrences in Africa. Extreme drought, desertification, low rainfall, and other manifestations of climate change impact negatively on the security of the continent. In addition to the environmental impact of climate change, there are cases of food and water insecurity, as well as economic insecurity, currently reflected in Africa. This has contributed to people displacement; from 2008-2021, 1.9 million people were displaced in Niger as a result of floods and 3.3 million people in 2020 are facing food shortages in Burkina Faso.[2] Furthermore, there are the existing security concerns in the continent: national and transnational extremist groups, porous borders, transnational organized crime, and political instability. The interaction between climate change and these existing security threats will give rise to a new set of security concerns that might be difficult to manage, not least its impact on global security.

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[1] "NATO Climate Change and Security Action Plan," North Atlantic Treaty Organization, last modified June 14, 2021, https://www.nato.int/cps/en/natohq/official_texts_185174.htm; Florian Krampe, Kheira Tarif, and Malin Mobjörk, "The pathways from climate change to insecurity," United Nations Development Programme, July 16, 2021, https://hdr.undp.org/en/content/pathways-climate-change-insecurity; Afolabi Aribigbola, Michael Olakunle Folami, and Olubimpe Adejoke Folami, "Climate Change and Insecurity are like a Chain Reaction," *Peace Review* 25, no. 4 (2013): 518-525, https://doi.org/10.1080/10402659.2013.846169; Ebimboere Seiyefa, "How Climate Change Impacts on Regional Security in West Africa: Exploring the Link to Organised Crime," *African Security Review* 28, no. 3-4 (2019): 159-171, https://doi.org/10.1080/10246029.2019.1697308.

[2] Internal Displacement Monitoring Centre, "Displacement Data Country Profile Niger," Internal Displacement Monitoring Centre, last modified May 18, 2022, https://www.internal-displacement.org/countries/niger; World Food Programme, "Burkina Faso Country Brief," World Food Programme, April 2022, https://docs.wfp.org/api/documents/WFP-0000140145/download/?_ga=2.177318053.166779201.1656947260-2016832974.1656947260.

Increased Transnational Organised Crime

The literature has indicated the absence of a direct link between climate change and transnational organized crime. However, climate change has been identified as a stressor, or threat multiplier, in cases of conflict and criminal activities. For example, there are reports of increased criminal activities, such as people smuggling, piracy, mercenaries, and water cartels, due to climate change-induced stress in Sub-Saharan Africa. In the case of water cartels, countries such as Somalia, Madagascar, and Kenya face climate change-induced water shortages. Accordingly, in these countries water supply is privatised by exploitative informal or illicit vendors.[3]

The World Bank reports that over 60 per cent of the population in Africa is involved in agricultural economic activities, and over 50 per cent of that population are subsistence and medium-enterprise farmers who rely on favourable climate conditions for food production and animal husbandry.[4] Hence, when climate change conditions adversely impact sources of livelihood, individuals are left with limited options: migrate and compete for resources or engage in illicit economic activities.[5] This is reflected in increased criminal activities in areas affected by climate change, such as Somalia, Mali, and Lake Chad communities. Grand and Tarif identify climate change-induced drought in northern Mali and Somalia as one of the contributing factors to the sustenance of Somali pirates, smuggling rings, and extremist groups in Africa.[6] It is important to highlight the threats posed by these groups to global security, such as piracy and terrorism. For instance, in addition to terrorist activities, groups such as Boko Haram have been complicit in transnational criminal activities in West Africa as well as serving as alternative sources of employment.[5]

In response to these criminal activities exacerbated by climate change and its threat to global security, the African Union (AU) in collaboration with NATO has been involved in operations targeting the activities of Somali pirates in the Gulf of Aden. However, despite NATO's involvement and African regional responses (usually military operations), transnational organised crime prevails. Part of what contributes to its persistence is the effect of climate change on livelihood. Hence, the presence of illicit economies and the existence of extremist groups, especially in Sub-Saharan Africa, ensure an alternative for income generation for those impacted by climate change. Dechery and Ralston identify West and North African countries as transit points for drug trafficking and human smuggling and trafficking headed to Europe and North America.[7] The United Nations Office on Drugs and Crime estimates that 200,000 people are smuggled annually to Europe from West Africa through the North African and Mediterranean routes.[8] Furthermore, at least 50

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[3] A. Boakye-Ansah, K. Schwartz, Z.M and Zwarteveen, "From Rowdy Cartels to Organized Ones? The Transfer of Power in Urban Water Supply in Water," *European Journal of Development Research* 31, no. 1 (2019): 1246-1262, DOI:10.1057/s41287-019-00209-3.

[4] Oxford Business Group, *Agriculture in Africa 2021* (Oxford Business Group, April 2021), https://oxfordbusinessgroup.com/sites/default/files/blog/specialreports/960469/OCP_Agriculture_Africa_Report_2021.pdf; see also Ayan Mahamoud, "Climate Security Pathways in the Horn of Africa and towards a Partnership with NATO," in this volume.

[5] Seiyefa, "How Climate Change Impacts on Regional Security in West Africa," 159-171.

[6] Grand Ovidie Anab and Tarif Kheria, "Climate-related Peace and Security Risks in Africa," ACCORD, December 10, 2021, https://www.accord.org.za/conflict-trends/climate-related-peace-and-security-risks-in-africa/.

[7] Côme Dechery and Laura Ralston, *Trafficking and fragility in West Africa* (World Bank, 2015), https://openknowledge.worldbank.org/server/api/core/bitstreams/1cb6b314-3d33-5acb-a2a7-3c4521f5a519/content.

[8] United Nations Office on Drugs and Crime (UNODC), *Global Study on Smuggling of Migrants* (Vienna: UNODC, 2018), http://unodc.org/documents/data-and-analysis/glosom/GLOSOM_2018_web_small.pdf.

tonnes of cocaine valued at $2 billion USD is transited through West Africa heading towards Europe and North America annually.[9]

African states such as Mali, South-Sudan, Chad, and Nigeria have porous borders, caused by active conflict and weak border management institutions.[10] This benefits organized criminal activities such as human and arms smuggling. Furthermore, the existing security architecture at the national, regional, and continental levels are hindered by ineffective implementation of security policies and corruption that allows for the proliferation of criminal activities. Additionally, ISIS, which has been largely defeated in the Middle East but still poses a threat to Europe and the US, is still active in Nigeria, Mozambique, Sudan, and other parts of Sub-Saharan Africa. While not directly linked to climate change, these phenomena are sustained by the availability of recruits who are pushed into these criminal networks and extremist groups as a result of economic vulnerability caused by climate change.

Irregular Migration

Irregular migration is defined as the undocumented, unauthorized movement of persons across national borders as opposed to regular migration, which is the movement of persons through authorized channels. There is a higher percentage of irregular migration within Africa compared to outside the continent.[11] Yet, the last ten years have recorded a steady increase in irregular migration from Mali, Eritrea, the Democratic Republic of the Congo (DRC), Somalia, and other African countries to Europe and North America. It is pertinent to highlight the perception of migration as a security threat in Europe, possibly due to rising nationalism largely driven by the Arab Spring and terrorism.[12] This perception is shaped by media framing and anti-migration political rhetoric, which highlight the financial implications and supposed physical threats of immigration. Anti-migration debates are heightened by the spectre of ISIS, protection of national identity – ensuring the maintenance of the host's majority social and religious values – and racial prejudice.[13] This is evident by European states reactions to migrants from 2011 to the time of writing. Examples include the construction of fences by Austria, Bulgaria, Hungary, and other countries, and NATO's involvement in patrolling the eastern Mediterranean Sea to deter people smuggling and stem refugee inflow.[14]

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[9] "West Africa Under Attack," UNODC, accessed August 17 2022, unodc.org/unodc/en/frontpage/west-africa-under-attack.html.

[10] Alazar Melkamu and Adonias Adugna, "African continental free trade area (AfCFTA) trade vs. security dilemma: From borders' perspective," *International Journal of Peace and Development Studies* 12, no. 2 (2021): 64-70, https://academicjournals.org/journal/IJPDS/article-full-text-pdf/43844D267534.

[11] Marie-Laurence Flahaux and Hein De Haas, "African Migration: Trends, Patterns, Drivers," *Comparative Migration Studies* 4, no. 1, (2016): 1-25, https://doi.org/10.1186/s40878-015-0015-6.

[12] Andrew Geddes and Leila Hadj-Abdou, "Changing the Path? EU Migration Governance after the 'Arab Spring,'" *Mediterranean Politics* 23, no. 1 (2018): 142-160, https://doi.org/10.1080/13629395.2017.1358904; Michael Werz and Max Hoffman, "Europe's Twenty-First Century Challenge: Climate Change, Migration and Security," *European View* 15, no. 1 (2016): 145-154.

[13] "Explaining the Main Drivers of Anti-Immigration Attitudes in Europe," Eyes on Europe, November 30, 2020, https://www.eyes-on-europe.eu/explaining-the-main-drivers-of-anti-immigration-attitudes-in-europe/#:~:text=The%20anti%2Dimmigrant%20attitudes%20are,the%20development%20of%20%E2%80%9Cnativism%E2%80%9D.

[14] Burcu Togral Koca, "Bordering Practices across Europe: The Rise of 'Walls' and 'Fences,'" *Migration Letters* 16, no. 2 (2019): 183-194, https://www.academia.edu/38905154/Bordering_Practices_Across_Europe_The_Rise_of_Walls_and_Fences_; Ewen MacAskill, "NATO Sends Patrol to Eastern Mediterranean to Combat People Smuggling," *The Guardian,* February 11, 2016. https://www.theguardian.com/world/2016/feb/11/nato-tasks-naval-patrol-with-combatting-people-smuggling-in-the-mediterranean.

Nonetheless, there is limited evidence in the literature that links mass migration to climate change from Africa. However, by 2050, Baird et al. estimate that 1 billion people, including Africans, could be displaced as a result of climate change leading to increased irregular migration.[15]

The International Organisation for Migration, a UN agency focused on shaping migration policy, observes the movement of people from environmentally stressed regions to locations within Africa believed to be environmentally well off.[16] The movement of these people increases pressure on the provision of essential resources such as land, water, jobs, and housing. Consequently, this leads to resource competition by migrants expressed in conflict and informs decisions to migrate to seemingly well-off climes beyond Africa. Between 2014-2016, 115,961 migrants moved from the DRC, Kenya, Niger, and Sudan to Austria, the Netherlands, and Sweden because of the loss of livelihood due to climate change impacts and the mismanagement of such adverse impacts.[17]

This is an important observation, especially from the perspective of reports of increased irregular migration of Africans crossing the Mediterranean Sea and the economic and social impact on receiving European countries. Eyes on Europe, an organization focused on cutting-edge issues in Europe, indicates existential conflicts in these countries, such as the perceived "clash of civilisations" reflected in rising Islamophobia; the issue of national identity and culture; and fears of terrorism and the possibility of climate change-induced migration exacerbating these conflicts.[13] Notwithstanding the observation of skilled Africans migrating as a result of climate change to supplement labour forces in parts of Europe and North America, the concerns of job competition in receiving countries (reflected in rising nationalist sentiments) and brain drain in exit countries, among other issues, cannot be ignored. Hence, while currently prevalent within Africa, climate change-induced migration will marginally increase Global South to Global North migration. This trend, coupled with increasing anti-immigration culture, could fuel rising nationalist and ethnic-based violence in the west.

Climate change-linked population displacements in Africa's unstable regions, including the G5 Sahel countries—Burkina Faso, Chad, Mali, Mauritania, and Niger—could undermine peace-building processes. For instance, NATO, through its operational and training support in Sudan and Somalia at the AU's request, has worked to combat piracy and insurgency.[18]

An Agenda for AU-NATO Climate Change Cooperation

The last three decades have recorded a series of meetings held by African and NATO leaders, albeit separately (with the exception of the UN climate change conferences), to navigate how best to respond to insecurity challenges arising from climate change. It is noteworthy to reiterate salient security threats highlighted in NATO's recent strategic concept. In particular the issue of conflict and instability in Africa being further exacerbated by climate change. This situation ensures an environment that is conducive for the proliferation of non-state armed actors which pose a threat to

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[15] Rachel Baid et al., *Human tide: the real migration crisis* (Christian Aid, May 2007), https://reliefweb.int/report/colombia/human-tide-real-migration-crisis-christian-aid-report.

[16] Robert McLeman, *Climate change, migration and critical international security considerations* (Geneva: International Organization for Migration, 2011), https://publications.iom.int/system/files/pdf/mrs42.pdf.

[17] Zaheer Bushra Fathima, "A Closer Look at Climate-Induced Human Migration from Seven African Nations to Seven OECD Nations," *NOKOKO Institute of African Studies* 8 (2020): 34-50, https://carleton.ca/africanstudies/wp-content/uploads/Nokoko-8-3-Fathima-Bushra-Zaheer.pdf.

[18] "Cooperation with the African Union", North Atlantic Treaty Organization, last modified June 17, 2022. https://www.nato.int/cps/en/natohq/topics_8191.htm#:~:text=Since%202005%2C%20NATO%20has%20been,for%20its%20mission%20in%20Sudan.

global security. [19] The AU's Climate Change Strategy and NATO's Climate Change and Security Action Plan attest to a common agenda to achieve the goal of effectively responding to climate change-induced security threats.[20]

There are similarities in both strategies that leave room for meaningful cooperation. These similarities include an awareness of the impact of climate change on security through annual impact assessments; and the utilisation of training, science, and technology in adapting to the effects of climate change on economic, environmental, defence, and military field operations. These strategies hold great promise as a starting point not only for the interests of the AU and NATO, but also for the benefit of global security.

The AU-NATO principal areas of cooperation could be expanded to reflect climate change-induced insecurity. For instance, structural assistance, operational, and training support could be expanded to include the aforementioned agendas. This means a deliberate shift from a heavy emphasis on military and defence-based support to more scientific and structural-based strategies, such as partnering in the AU's Great Green Wall initiatives. The Great Green Wall initiatives involve tackling detrimental social, economic, and environmental impacts of land degradation and desertification. This paper has argued that climate change impacts in Africa does have global security implications, as such the importance of meaningful cooperation between AU and NATO in achieving aforementioned climate change agendas is pivotal in combating climate change and ensuring global security. ■

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[19] NATO, *NATO 2022 Strategic Concept*, (2022). https://www.nato.int/nato_static_fl2014/assets/pdf/2022/6/pdf/290622-strategic-concept.pdf.

[20] African Union, *African Union Green Recovery Action Plan 2021-2027* (Addis Ababa: Directorate of Sustainable Environment and Blue Economy, African Union, 2021), https://au.int/sites/default/files/documents/40790-doc-AU_Green_Recovery_Action_Plan_ENGLISH1.pdf; "NATO Climate Change and Security Action Plan"; *NATO, Climate Change & Security Impact Assessment* (Brussels: NATO, 2022), https://www.nato.int/nato_static_fl2014/assets/pdf/2022/6/pdf/280622-climate-impact-assessment.pdf.

Climate Security Pathways in the Horn of Africa and towards a Partnership with NATO

Ayan Mahamoud

Established a few years after the end of the Second World War, amid growing divisions and a developing Cold War, NATO's mission has evolved with shifting global security dynamics. NATO's Secretary General Jens Stoltenberg indicated during the UN's Climate Change Conference, COP 26, hosted in Glasgow in 2021, that the alliance, which had traditionally dealt with state and non-state actors, had been reflecting on threats deemed actorless, such as pandemics and anthropogenic climate change, that impact the security agenda.[1] His statement came after the NATO Ministers of Foreign Affairs had endorsed the organization's Climate Change and Security Agenda Action Plan in March 2021.[2]

NATO's climate security agenda provides a comprehensive approach for the organization and its allies to contribute to the global climate change agenda. The 2021 NATO Climate Change and Security Action Plan addresses the impact of climate change on security. It provides guidelines, analytical methodologies, and tools to map the greenhouse gas emissions from military activities and installations, as well as proposes clear adaptation and mitigation measures. NATO indicated that the Action Plan aimed to enhance its members and its allies' awareness of the impact of climate change on security while increasing the alliance's outreach, ensuring a credible deterrence and defence posture, protecting the safety of military personnel, and maintaining operational and cost effectiveness.[3] The 2022 NATO Strategic Concept, adopted at the NATO Summit in Madrid on June 29, 2022, similarly acknowledges and addresses climate change as an aspect of the strategic environment under which NATO forces operate across the globe.[4] NATO's strategy on climate change provides the framework to broaden the spectrum of its partnership with other intergovernmental organizations (IGOs), such as the Intergovernmental Authority on Development (IGAD), and expand NATO's climate security action to strategic fronts such as Sub-Saharan Africa and the Horn of Africa.

Climate and Security Dynamics in the IGAD Region

The Horn of Africa is home to IGAD, one of the eight Regional Economic Communities (RECs) that compose the African Union (AU). IGAD was established in 1986 as the Intergovernmental Authority on Drought and Development (IGADD). The organization revised its establishment agreement in 1996, expanding it to include peace and security as well as economic and social development as part of its regional mandate.[5] It aims to coordinate the efforts of member states in achieving regional food security and assist them in combatting natural and human-induced disasters,

[1] Sherri Goodman and Katarina Kertysova, "NATO: An unexpected driver of climate action?," *NATO Review*, last modified February 1, 2022, https://www.nato.int/docu/review/articles/2022/02/01/nato-an-unexpected-driver-of-climate-action/index.html.
[2] "NATO Climate Change and Security Action Plan," North Atlantic Treaty Organization, last modified May 16, 2022, https://www.nato.int/cps/en/natohq/official_texts_185174.htm
[3] "NATO Climate Change and Security Action Plan."
[4] NATO, *NATO 2022 Strategic Concept*, (2022), https://www.nato.int/strategic-concept/.
[5] "About IGAD," IGAD, last modified May 26, 2022, https://igad.int/about/.

such as drought, war, terror attacks, and arson, and their consequences.[6] The IGAD region covers an area of 5.2 million square kilometres, with a current population of just over 270 million people.[7]

The IGAD Conflict Early Warning and Response Mechanism (CEWARN), which was launched in 2002, is a co-operative initiative of the eight IGAD member countries.[8] The basic underlying mission of CEWARN is to assess the political, social, economic, and environmental conditions at regional, national, and sub-national levels that could potentially lead to conflicts and prevent escalation.[9]

In the past twenty years, CEWARN has primarily focused on preventing and mediating conflicts related to cross-border pastoralists and other associated issues, such as youth unemployment, pastoral mobility, election governance and management, and resource-based conflicts.[10] Climate change is projected to increase the displacement of people due to a lack of resources and extreme weather events, in both rural and urban areas, particularly in low-income countries.[11]

Indeed, climate change, coupled with poverty, inequality, and marginalization, can provide fertile grounds for non-state armed groups to thrive. Examples include the prevailing situation in the Virunga territories of the Democratic Republic of the Congo, Rwanda, and Uganda, or the Liptako-Gourma cross-border areas of Burkina-Faso, Mali, and Niger. Of the nearly sixty conflict early warning triggers currently of significant concern in the IGAD region, CEWARN prioritized nine key conflict issues with a high potential of becoming violent.[12]

However, the link between climate change and violent extremism is seldom direct. In its regional strategy for preventing and countering violent extremism, IGAD defines violent extremism in Eastern Africa as a "complex hybrid of civil wars, insurgencies, separatisms, terrorism, political violence, and criminality." The strategy further asserts intra-state and inter-state conflicts, economic vulnerability, and natural disasters as the core causes of violent extremisms in the IGAD region, echoing CEWARN in their regional conflict assessment, zeroing in on youth unemployment as one of the major drivers of conflict in the region.[13] When people lose land and livelihood because of climate variability and its impacts, it creates an unstable environment where they could potentially

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[6] IGAD current has eight MS: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda. "About IGAD," IGAD, last modified May 26, 2022, https://igad.int/about/.

[7] The Horn Economic and Social Policy Institute (HESPI), Appendix 3 in *Macroeconomic performance of IGAD and the implications of China's economic slowdown* (Addis Ababa: The Horn Economic and Social Policy Institute, 2017), 38, https://www.africaportal.org/publications/macroeconomic-performance-igad-and-implications-chinas-economic-slowdown/.

[8] Djibouti, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda.

[9] CEWARN, *CEWARN Abbreviated Strategy Framework 2012-2019* (CEWARN, 2022), 27, https://www.cewarn.org/attachments/article/13/CEWARN%20abbreviated%20strategy%20framework%20-%202012-2019%20(CEWARN%20VI)_2.pdf.

[10] CEWARN, "Regional Conflict Outlook," *CEWARN*, 2021, 2, https://www.cewarn.org/index.php/reports/early-warning-reports/national-regional-conflict-profiling-reports/190-final-version-regional-conflict-profiling-and-scenario-building-14-sep-21-1-1/file.

[11] Hans-Otto Pörtner et al., eds., *Climate Change 2022: Impacts, Adaptation and Vulnerability*, Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change, 2022), 11, https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/.

[12] CEWARN, "Conflict Early Warning Reports," *IGAD,* 2021, 2, https://www.cewarn.org/index.php/reports/early-warning-reports.

[13] IGAD Centre of Excellence for Preventing and Countering Violent Extremism (ICEPCVE), *The IGAD Regional Strategy for Preventing and Countering Violent Extremism* (IGAD, 2018), 3, https://cve.igad.int/wp-content/uploads/2020/03/The-IGAD-Regional-Strategy-for-Preventing-and-Countering-Violent-Extremism.pdf.

become recruits of Violent Extremist Organizations (VEOs) or turn to crime as a means to sustain a livelihood.[14]

Pastoralism, which is the dominant economic activity and the main source of livelihood for a majority of the population in the arid and semi-arid regions of the Horn of Africa, is particularly vulnerable to climatic extremes such as drought and poor natural resource management.[15] Erratic rain patterns and frequent and prolonged droughts induced by climate change have resulted in a decline in the availability of water, and in the quantity and quality of forage. Thus, when waterholes and rivers dry up, it leads to widespread crop failures, thereby triggering migration of pastoral communities and increasing the risk of family separation and conflict over scarce resources.[16]

The IGAD Regional Climate Security Agenda

The pathways through which climate and security factors are manifested are determined by a combination of exposure to hazards, vulnerability, and the coping capacity of states and communities responding to natural or anthropogenic disasters, shocks, and stresses. The IGAD region is one of the most vulnerable regions to climate change and climate variability. The region is impacted by slow and sudden onset disasters, including frequent droughts, flooding events, desert locust invasion, and salination along the coast, all of which have negative impacts on livelihoods, food and water security, and ecosystems.[17]

Furthermore, dependency on rain-fed agriculture and livestock suggests a considerable degree of sensitivity to climate variability and change. The limited number of climate-sensitive and climate-smart approaches to build resilience and environmentally sensitive livelihoods is one of the key factors increasing the susceptibility of marginalized groups to the recruitment of violent and extremist groups, with security responses compounding fragility and impinging on human rights.[18]

In response, IGAD acts at various levels. Through its divisions and specialized institutions, such as the IGAD Centre for Pastoral Areas and Livestock Development (ICPALD), the IGAD Security Sector Program (ISSP), the IGAD Climate Prediction and Application Centre (ICPAC) and CEWARN, IGAD regularly undertakes threat and risk assessments on climate and security issues. This contributes to the enhancement of empirical and overlaid knowledge on the vulnerability and threats in the region. At the policy level, IGAD and its member states partner with various actors—

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[14] adelphi, *Insurgency, Terrorism and Organised Crime in a Warming Climate: Analysing the Links Between Climate Change and Non-State Armed Groups* (Berlin: adelphi, 2016), 8, https://climate-diplomacy.org/sites/default/files/2020-10/CD%20Report_Insurgency_170724_web.pdf. See also Ebimboere Seiyefa, "Climate Change in Africa and its Impact on Global Security," in this volume.

[15] Kennedy Mkutu, *Pastoralism and conflict in the Horn of Africa* (Nairobi, London, and Bradford: Africa Peace Forum, Saferworld, and University of Bradford, 2001), 11, https://www.saferworld.org.uk/resources/publications/75-pastoralism-and-conflict-in-the-horn-of-africa.

[16] Pörtner et al., *Climate Change 2022*.

[17] Cory Rodgers, "Equipped to Adapt? A Review of Climate Hazards and Pastoralists' Responses in the IGAD Region," (Nairobi: IOM and ICPALD, March 2022), 15, https://icpald.org/wp-content/uploads/2022/09/ICPALD-IOM-Pastoralism-Report.pdf; "IGAD to Establish Inter-regional Coordination Platform for the Management of Desert Locust and other Transboundary Pests," IGAD, accessed December 19, 2022, https://igad.int/igad-to-establish-an-inter-regional-coordination-platform-for-the-management-of-desert-locust-and-other-transboundary-pests/; "Priority Intervention Area 4: Gender and Pastoral Disaster Risk Management in the IGAD Region," Policy Brief (IGAD, 2021), 1, https://resilience.igad.int/wp-content/uploads/2021/11/IDDRSI-Gender-Policy-Brief-PIA-4.pdf.

[18] A.E. Boyer, S.S. Meijer, and M. Gilligan, *Advancing Gender in the Environment: Exploring the triple nexus of gender inequality, state fragility, and climate vulnerability* (Washington, DC: IUCN and USAID, 2020), 19, https://www.climatelinks.org/sites/default/files/asset/document/2021-03/2021_USAID_IUCN-AGENT-Triple-Nexus-Research-Report.pdf. See also Ebimboere Seiyefa, "Climate Change in Africa and its Impact on Global Security," in this volume.

governments, civil society, academia, and national defence forces—to ensure that the multiplier effect of conflict and climate change are sustainably addressed. The recently adopted strategies for climate-resilient livestock, the IGAD Protocol on Transhumance as well as the drought-resilience strategy, are examples of policy frameworks.[19]

Conclusion

Climate security in the IGAD region is a complex and multi-entry development question with many different pathways to address climate and security risks (Figure 1). For IGAD, a regional climate security programme starts with an integrated early warning for timely action. Conflict-sensitive approaches (CSA) are integrated at the onset to ensure a common understanding of the drivers exacerbating, maintaining, or initiating conflicts; and that development programs in a conflict-affected environment have the potential to exacerbate conflicts or contribute to peace.

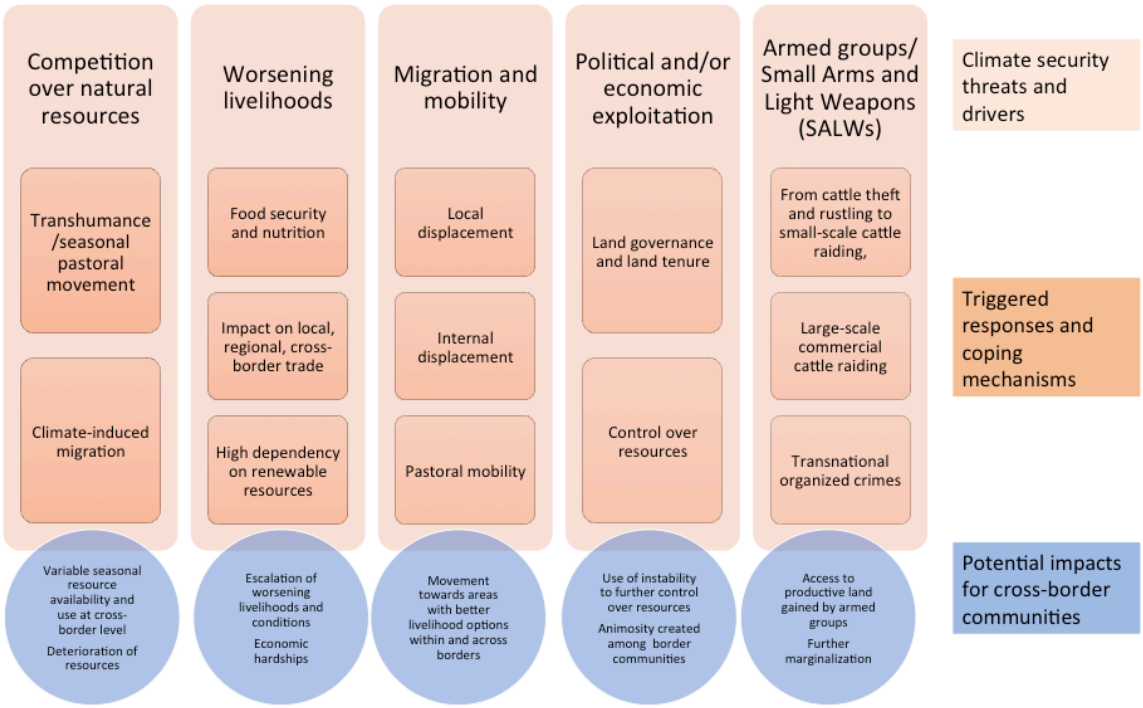

Figure 1: Proposed Climate Security Pathways in the IGAD region (Published with the permission of Ayan Mahamoud)

Although IGAD has a successful track record in addressing the key developmental challenges in the Horn of Africa, disjointed efforts at times hamper effective and efficient regional actions, which

[19] IGAD Centre for Pastoral Areas and Livestock Development (ICPALD), *IGAD Protocol on Transhumance* (Nairobi: ICPALD, June 2021), https://icpald.org/wp-content/uploads/2022/09/Transhumance-Protocol-EN.pdf; IGAD Drought Disaster Resilience & Sustainability Initiative (IDDRSI), "The IGAD Drought Disaster and Resilience and Sustainability Initiative (IDDRSI): Regional Programming Paper 2019-2024" (Djibouti: IDDRSI, 2019), https://icpald.org/wp-content/uploads/2019/10/IDDRSI-RPP.pdf.

often results in the duplication of efforts and uneven geographic coverage.[20] In fact, mitigation actions, as well as exposure to the impact of climate change on food security and natural resources' availability, are increasingly cross-border in nature. Failure to consider the spillover effects of climate and security threats ultimately results in increased risks, such as greater social inequality, declines in agricultural productivity, and crisis exposure across multiple social, economical, political, and environmental dimensions.

In a region that previously hosted NATO forces under Operation Ocean Shield, a NATO-IGAD partnership to address another security risk that transcends borders seems indicated.[21] Moreover, with most of the EU's member states also being a NATO member or an ally, such a partnership would resonate with the EU's High Representative for Foreign Affairs and Security Policy and Vice President of the European Commission Josep Borrell Fontelles' speech about EU-Africa relations at the European Parliament on February 15, 2022. Borrell Fontelles highlighted how interlinked Europe and Africa are as continents, and reminded the world that "African problems are equally European problems."[22] He further emphasized the importance of the EU-Africa partnership and that EU support was necessary to address the key climate and security challenges the continent is facing, whether in the Sahel or the Horn of Africa.[23] The IGAD region already hosts the EU Naval Force (EU NAVFOR) ATALANTA and civilian mission EUCAP NESTOR addressing piracy on the shores of Somalia.[24]

IGAD believes that coordination and partnership are key to creating a meaningful impact and addressing the impact of a changing climate across the region. The proposed IGAD and NATO partnership would aim at addressing and mitigating climate-related security risks at sub-regional, national, and local levels before the risks escalate and spread to the NATO member countries. The future NATO Climate Change and Security Centre of Excellence could play the strategic role of facilitating the partnership with the various IGAD divisions and specialized institutions.[25]

Areas of mutual interest could include strategic information generation and sharing, building capacities across all relevant stakeholders, domesticating the IGAD Regional Security Co-Operation Framework, the NATO Climate Change and Security Action Plan, the IGAD Climate Resilient Livestock Strategy, and the IGAD Drought Resilience Strategy, among other policy frameworks. A NATO-IGAD partnership would require improved strategic and systematic data collection and analysis across the climate and conflict spheres and the strengthening of integrated early warning systems. It would also require joint action-oriented data analysis among IGAD and NATO's climate change and security partners, and across sub-regional as well as governmental agencies. It would necessitate promoting regional and cross-border trade, social cohesion, and resilience and livelihood

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[20] David J. Francis, "Linking Peace, Security and Developmental Regionalism: Regional Economic and Security Integration in Africa," *Journal of Peacebuilding & Development* 2, no. 3 (2006): 7–20, https://www.jstor.org/stable/48602978.

[21] "Counter-piracy Operations (2008-2016)," North Atlantic Treaty Organization, last modified May 19, 2022, https://www.nato.int/cps/en/natohq/topics_48815.htm.

[22] "Kenya: Press Remarks by High Representative/Vice-President Josep Borrell at the Joint Press Conference with Cabinet Secretary Omamo" (remarks, January 28, 2022), European External Action Service (EEAS), https://www.eeas.europa.eu/eeas/kenya-press-remarks-high-representativevice-president-josep-borrell-joint-press-conference_en.

[23] Rodgers, "Equipped to Adapt?"

[24] "EU NAVFOR Atalanta: 10 years of fighting piracy in Somalia," *EEAS*, December 8, 2018, https://www.eeas.europa.eu/node/55058_en; "About EUCAP Somalia," *EEAS*, May 12, 2022, https://www.eeas.europa.eu/eucap-somalia/about-eucap-somalia_en?s=332.

[25] "NATO Climate Change and Security Centre of Excellence," Government of Canada, accessed July 1, 2022 https://www.international.gc.ca/world-monde/international_relations-relations_internationales/nato-otan/centre-excellence.aspx?lang=eng.

development, keeping in mind the strengthening of policy dialogue and regional mechanisms for sustained, coordinated action.

Addressing climate and security challenges requires innovative and inclusive solutions and partnerships. Both IGOs were set up to add value to their members' efforts and to scale up multilateral cooperation to address the challenges faced at the national level. Could "Think NATO, act at IGAD level" be the motto of this partnership? ■

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NATO as a Climate Alliance Treaty Organization

Ibrahim Al-Marashi and Amar Causevic

In the late spring and summer of 2020, sandstorms swept over Iraq, portending a troubling future for the nation and the rest of the region. While sandstorms are natural phenomena exacerbated by climate change, they are becoming more intense due to corruption and failure to prioritize managing water and green spaces, which reflects a failure of Iraqi governance since the 2003 Iraq war.[1] Ultimately, national governments in the region and collective bodies like the United Nations or Arab League need to acknowledge and prepare for transnational environmental risks. This requires nations and collective security institutions to adapt to threats that do not emanate from either state or non-state actors. While it may not be immediately apparent, sandstorms like these remind NATO that national, regional, and environmental security intersect. The Alliance will have to acknowledge simultaneously the precarious confluence and new security dilemmas resulting from desertification due to climate change, as it will face more and more interventions connected to problems such as large-scale migratory flows, terrorism, insurgencies, border militarization, and conflicts arising from scarce resources.[1]

Just as NATO is responding to a crisis affecting a non-member state, Ukraine, contiguous to alliance members, such as Poland, Iraq also borders NATO member state Turkey. While the greatest threat to Ukraine has been another state, Russia, perhaps Iraq's most significant danger is a natural phenomenon, climate change. At the same time, the climate crisis transcends the discrete borders of nation-states, causing instability for the entire Sahel region in Africa.

The Security Threat

The CNA Corporation's study of 2007 served as a seminal document, setting the agenda of linking climate change and international security among policy elites in Washington. The Center for Naval Analyses' Military Advisory Board, composed of former American military commanders, categorized climate change as a "threat multiplier," impacting the global security landscape in the coming decades.[2] The term "threat multiplier indicated that a non-traditional security threat, climate change, would result in multiple, interconnected security threats, ranging from large-scale migratory flows, border militarization, and ensuing resource conflicts, insurgencies, and terrorism, with the potential to impact one or more nation-states' socioeconomic and political security.[3]

While the language of "threat multiplier" serves its purpose of linking climate change and security, a combination of other factors exists within particular nations that exacerbates domestic security when climate disruptions occur. Only when these combinations are elucidated can policy emerge that mitigates its negative security consequences. Societies with a history of conflict, agricultural dependence, water deficits, and the political exclusion of ethnic or religious groups, are

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[1] Kawa Hassan, Camilla Born, and Pernilla Nordqvist, *Iraq: Climate-Related Security Risk Assessment* (Stockholm International Peace Research Institute, 2018), https://sipri.org/research/peace-and-development/climate-change-and-risk/expert-working-group-climate-related-security-risks; Tobias von Lossow, "More than infrastructures: water challenges in Iraq," Policy Brief (Planetary Security Initiative and Clingendael, 2018), https://www.clingendael.org/sites/default/files/2018-07/PB_PSI_water_challenges_Iraq.pdf.

[2] The CNA Corporation, *National Security and the Threat of Climate Change* (Alexandria, VA: The CAN Corporation, 2007), https://www.cna.org/cna_files/pdf/National Security and the Threat of Climate Change.pdf.

[3] David Wallace-Wells, *The Uninhabitable Earth* (New York, NY: Tim Duggan Books, 2019).

prone to instability due to climate change.[4] Iraq, Syria, Libya, and Yemen meet all these conditions in the Middle East and North Africa (MENA). Iraq and Syria border NATO member Turkey and NATO has already intervened in Libya in 2011.[5]

The Islamic State of Iraq and the Levant (ISIL) has seven affiliates threatening eleven countries. Besides its branches in Tunisia, Egypt, and Libya, ISIL acquired four affiliates in sub-Saharan Africa and the Sahel. The Islamic State in the Greater Sahara operates in Mali, Niger, and Burkina Faso, a zone particularly affected by desertification. The Islamic State West African Province operates in Nigeria, while another affiliate is in Somalia. Further south, the Islamic State Central African Province recently emerged in the Democratic Republic of the Congo and Mozambique. In sub-Saharan Africa, ISIL affiliates clash with existing al-Qaeda affiliates. They also have garnered support from clans, nomads, and farmers over issues such as grazing rights, a harbinger of what future instability will look like due to climate change.[6]

NATO should prepare proactively to deal with the aforementioned climate-related security risks, and adopt policies that proactively mitigate environmental crises in the MENA, rather than allowing them to exacerbate transnational terrorism and refugee flows.[7]

NATO's Climate Doctrine

NATO emerged as a security alliance during the Cold War to deter the Soviet Union.[8] Following the latter's collapse, NATO adapted to counter a resurgent Russia and China. NATO readapted its military posture to deal with non-state actors such as Al Qaeda, the Taliban, and ISIL in the Middle East and Afghanistan. It has been daunting for NATO, which emerged as a Cold War collective security institution among nation-states to deter an alliance of other nation-states, to deal with security challenges emerging as a result of natural phenomena. Nonetheless, NATO has responded to climate change in several ways. The first is a grand reorientation of NATO policy. These efforts collectively represent a shift in NATO's objectives, adapting its military resources to address issues such as climate change.[9]

As a result, the second and third responses deal with operations. The second can be characterized as a "Green NATO." This includes NATO's efforts to make its military operations more environmentally friendly, minimizing its forces' impact on the ecology, whether it be on sea or land, in addition to NATO serving as a disaster response force due to events caused by or exacerbated by climate change. Hurricane Katrina in the US in 2005 and floods in Bosnia and Herzegovina in 2014 are natural phenomena exacerbated by climate change.[10]

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[4] Joshua Busby and Nina von Uexkull, "Climate Shocks and Humanitarian Crises," *Foreign Affairs*, accessed June 15, 2022, https://www.foreignaffairs.com/articles/world/2018-11-29/climate-shocks-and-humanitarian-crises.
[5] Ibrahim Al-Marashi and Amar Causevic, "NATO and Collective Environmental Security in the MENA: From the Cold War to Covid-19," *Journal of Strategic Security* 13, 4 (2020): 37.
[6] Paula Granger, *A Perfect Storm: How Climate Change Contributed to the Rise of the Islamic State* (Monterey, CA: Middlebury Institute for International Studies at Monterey, 2019), https://www.middlebury.edu/institute/academics/centers-initiatives/ctec/ctec-publications/perfect-storm-how-climate-change-contributed. See also Ayan Mahamoud, "Climate Security Pathways in the Horn of Africa and towards a Partnership with NATO," in this volume.
[7] See Ebimboere Seiyefa, "Climate Change in Africa and its Impact on Global Security," in this volume.
[8] Alex Gatopoulos, "Desperately Seeking Relevance: NATO in the 21st Century," *Al Jazeera*, accessed June 14, 2022, https://www.aljazeera.com/features/2021/6/14/desperately-seeking-relevance-nato-in-the-21st-century.
[9] Amar Causevic and Ibrahim Al-Marashi, "Can NATO Evolve into a Climate Alliance Treaty Organization in the Middle East?," *Bulletin of the Atomic Scientists* 76, 2 (2020): 97–101, https://doi.org/10.1080/00963402.2020.1728981.
[10] Amar Causevic, "Facing an Unpredictable Threat: Is NATO Ideally Placed to Manage Climate Change as a Non-Traditional Threat Multiplier?," *Connections: The Quarterly Journal* 16, 2 (2017): 59–80, https://doi.org/https://doi.org/10.11610/Connections.16.2.04.

The fourth response has yet to harness the potential to adapt and respond to climate disruption in the future pre-emptively. This is currently only partially implemented. NATO policy began to address climate change in the aftermath of Hurricane Katrina in 2005. Between 2008 and 2009, Secretaries Generals Jaap de Hoop Scheffer and Anders Fogh Rasmussen sought to integrate climate change within NATO's *modus operandi*. Climate change was first institutionalized via the 2010 Strategic Concept for the Defence and Security document.[11] The Security Environment section of the report briefly states: "Key environmental and resource constraints, including health risks, climate change, water scarcity, and increasing energy needs will further shape the future security environment in areas of concern to NATO and have the potential to significantly affect NATO planning and operations."[12] After that, the Emerging Security Challenges Division (ESCD) was created, with climate change as one of its responsibilities.[13] In 2015, NATO Parliamentary Assembly adopted Resolution 427 on Climate Change and International Security, recognizing climate change as a non-traditional threat multiplier, affecting security "in areas of concern to the Alliance and have the potential to significantly affect NATO planning and operations."[14] While the Madrid summit in 2022 primarily focused on the Russian invasion of Ukraine, its new Strategic Concept acknowledges the precarious confluence and new security dilemmas resulting from desertification due to droughts linked to climate change, deforestation, and unsustainable agricultural practices, which severely reduces water availability for soil.[15]

Regarding operations, "Green NATO" emerged in 2014, when the Alliance adopted the Green Defence framework. The framework provided a basis for integrating environmentally friendly solutions for defence. For example, Smart Energy Teams implemented plans to lower fuel and electricity consumption through energy-efficient solutions.[16] Lithuania houses the NATO Energy Security Centre of Excellence, which is researching the alliance's energy transformation and reduction of fossil fuel use.[17] Other programs include military forces using solar panels to power electronic equipment and experimenting with hydrogen fuel cells.[18]

Regarding disaster response, the Crisis Management and Disaster Response Centre of Excellence, based in Bulgaria, provides training and education concerning security concerns arising from natural disasters.[19] The centre played a crucial role in helping NATO to address various environmental disasters such as the floods in Bosnia in 2014.[20]

With the war in Ukraine in 2022, it remains doubtful that climate change will be emphasized in NATO's *modus operandi*, as opposed to its traditional mission of deterring Moscow. However,

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[11] Duncan Depledge and Tobias Feakin, "Climate Change and International Institutions: Implications for Security," *Climate Policy* 12, SUPPL. 1 (2012): S73–84, https://doi.org/10.1080/14693062.2012.728794.
[12] NATO, *Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization* (Brussels: NATO Public Diplomacy Division, 2010), 1, https://www.nato.int/cps/en/natohq/topics_82705.htm.
[13] Causevic, "Facing an Unpredictable Threat."
[14] NATO Parliamentary Assembly, "Resolution 427 on Climate Change and International Security" (2015), 1 https://www.actu-environnement.com/media/pdf/news-25462-resolution-otan-2015.pdf.
[15] NATO, *NATO 2022 Strategic Concept 2022* (2022), https://www.nato.int/nato_static_fl2014/assets/pdf/2022/6/pdf/290622-strategic-concept.pdf.
[16] Causevic, "Facing an Unpredictable Threat."
[17] Julijus Grubliauskas, "NATO's Energy Security Agenda," *NATO Review*, accessed June 18, 2022, https://www.nato.int/docu/review/articles/2014/05/09/natos-energy-security-agenda/index.html.
[18] NATO News, "NATO Secretary General at Sciences Po Youth & Leaders Summit," filmed January 18, 2021 at Youth and Leaders Summit, Sciences Po, Paris School of International Affairs, Paris and Brussels, 1:30, https://www.youtube.com/watch?v=Kcva85RoASk.
[19] "Vision and Mission," NATO CMDR COE, accessed August 25, 2022, https://www.cmdrcoe.org/menu.php?m_id=44.
[20] Causevic, "Facing an Unpredictable Threat."

NATO needs to better integrate climate change into its *modus operandi.* Climate change needs to become part of NATO's organizational memory and culture.[21] The alliance needs to invest more in robust climate resilience strategies, plans, and investments, especially regarding climate implications for natural disasters and water and food security. Article 36 states: "We will further develop the Alliance's ability to support civilian crisis management and relief operations and to prepare for the effects of climate change, food insecurity and health emergencies on Allied security. This will allow us to respond to any contingency at short notice." While such an acknowledgement is promising, it remains to be seen what assets the alliance will invest to meet this challenge.

Climate change as a topic needs to acquire higher visibility in the curricula of NATO member states' military academies, NATO's Defence College, and NATO's Centres of Excellence. This is one of the first steps to increase the visibility of climate change and give it more relevance. At the Climate Change and Security Centre of Excellence in Montreal, for instance, "both military and civilian actors will develop, enhance, and share knowledge on climate change security impacts."[22]

Can climate change help NATO evolve?

The sandstorms in Iraq are just the latest example of NATO's need to invest more in robust climate resilience strategies, plans, and investments, especially regarding climate implications for water and food security. The climate-proofing of fragile states also needs to be addressed. This includes assistance aimed at building climate resilience to strengthen water security, food security, and disaster preparedness. The Science for Peace and Security Program needs to obtain more funding and staffing to sponsor research projects, such as the development of efficient desalination technology in 2011, when NATO funded researchers at the Ben-Gurion University of the Negev, the University of Colorado, and the Hashemite University of Jordan.[23] Such cross-border projects strengthened cooperation with NATO in the region and relations among neighbouring Middle Eastern states.

Nevertheless, climate risks are of high relevance for NATO member states as well. Due to exacerbating climate impacts in the last several years, NATO helped at that time candidate, today a member state, North Macedonia to enhance real-time situational awareness and better deal with natural disasters.[24] Greece was the first country in the world that established a new ministry to address the impact of climate change. This action was a result of devastating wildfires every summer since 2014.[25] Climate change-induced disasters during the 2021 summer stimulated similar changes in Turkey, where the government renamed its Environment and Urbanization Ministry as the Environment, Urbanization, and Climate Change Ministry.[26] The reorganized ministry will tackle the climate change issue in a more sustained manner.

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[21] Causevic and Al-Marashi, "Can NATO Evolve into a Climate Alliance Treaty Organization in the Middle East?"
[22] "NATO Climate Change and Security Centre of Excellence," Government of Canada, accessed August 26, 2022, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/nato-otan/centre-excellence.aspx?lang=eng. See also Simon Dalby, "Climate Security: Moving NATO—and Canada—Beyond Fossil Fuels," in this volume.
[23] Al-Marashi and Causevic, "NATO and Collective Environmental Security in the MENA."
[24] "NATO works with North Macedonia to improve disaster response," NATO, accessed June 18, 2022, https://www.nato.int/cps/en/natohq/news_167778.htm.
[25] Derek Gatopoulos, "Greece Creates Climate Crisis Ministry after Huge Wildfires," *AP News*, accessed September 6, 2021, https://apnews.com/article/europe-fires-climate-greece-climate-change-223f3445c1f9fc90d95adf06ac98f7ba.
[26] "Turkey Now Has a Climate Change Ministry," *Daily Sabah*, accessed June 20, 2022, https://www.dailysabah.com/life/environment/turkey-now-has-a-climate-change-ministry-erdogan.

NATO has demonstrated that it can mobilize its forces to deal with threats to the international order due to natural phenomena, such as the coronavirus pandemic.[27] The Alliance is equally suited to deal with climate change as long as the member states develop the political will to acknowledge the severity of this threat. ■

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[27] NATO, *NATO 2030: United for a New Era* (2020), https://www.nato.int/nato_static_fl2014/assets/pdf/2020/12/pdf/201201-Reflection-Group-Final-Report-Uni.pdf.

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