

NATO and Climate Change: Better Late Than Never

Jamie Shea

NATO often comes late to new security challenges that are not immediately linked to collective defense, like climate change, but it then uses its tested planning and consultation machinery to catch up quickly.

NATO can broaden its focus on security to include risks from climate stress. It can orient its security work toward a prevention- and resilience-based approach to create an early-warning system that accounts for the impacts of climate change on civilians and political stability.

NATO's focus is to monitor and reduce the carbon emissions of its own military forces, which are considerable. Now, when it needs to deploy its forces to deter and defend against Russia, the alliance must move energy security higher up its agenda and integrate it more coherently in its climate-change and energy-security policies.

Russia's invasion of Ukraine has impacted NATO's objectives on climate change, but its climate agenda does not have to be incompatible with its military operational priorities.

Introduction

It has taken some time for the security implications of climate change to find their way on to the NATO agenda. This can be explained by the many security challenges that the alliance has faced in the 21st century—a more assertive Russia in NATO's eastern neighborhood, the withdrawal from Afghanistan, the threat of cyberattacks and hybrid warfare campaigns, and now the implacable rise of China as a global military and technological power. At the same time, for a security community used to reacting to—not anticipating—crises and to dealing with concrete and imminent challenges, climate change may well have seemed difficult to assess. It would have a future, not present, impact and affect areas of the world, such as sub-Saharan Africa or the Middle East and Central Asia, where the alliance was little engaged. In the international arena, the focus was on mitigation, trying to significantly reduce greenhouse-gas emissions, rather than on adaptation, making our societies more resilient to cope with the shocks that climate-change-driven events would more frequently engender. Once the dimensions of climate change as a security challenge became clearer, policymakers would have time to adjust their strategies and capabilities.

Yet the past few years have underscored that the future is now. There is no more luxury of time to respond to this challenge. The planet is sending repeated warnings that climate change has reached a tipping point and poses a constant threat to the functionality of economies and societies. This will make larger areas of the globe uninhabitable, as living with 50 degrees Celsius (122 degrees Fahrenheit) or hotter becomes the norm rather than the exception. The past three summers have been the hottest on record; the past five years have seen the largest numbers of category 4 and 5 hurricanes. Devastating forest fires have displaced people from the west coast of the United States, western Canada, Siberia, Greece, Portugal, and Australia. Colorado recently experienced such a fire in the middle of the winter. In January, meteorologists recorded the most extreme temperature vortex ever, with minus 50 degrees Celsius (minus 58

degrees Fahrenheit) in the Arctic and plus 50 degrees Celsius (plus 122 degrees Fahrenheit) in Australia. We have become used to heavier rainfalls and more widespread flooding. Rising sea levels have placed entire cities and even countries in jeopardy, as we heard in the powerful words from Bermuda's prime minister, representing the small island states, at 2021 United Nations Climate Change Conference (COP26) in Glasgow last November. Indeed, 50 percent of Asia's population today lives in coastal cities. The biodiversity that has regulated the smooth functioning of our natural habitat for thousands of years is being rapidly depleted. Prolonged droughts affect freshwater availability and put acute stresses on food production and rural livelihoods, leading the United Nations to forecast that by mid-century, 40 percent of the globe's land surface will be subject to acute water stress. We will need to contend with more climate refugees than those today on the move because of conflicts or poverty (currently an all-time high of 26 million).

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Only belatedly have we become aware of the role that droughts play in exacerbating social and political tensions in places such as Syria, Darfur, and Afghanistan. Of course, not every natural disaster can be laid at the door of climate change, as earthquakes in Haiti or the recent eruption of an undersea volcano near Tonga attest. Moreover, the planet's climate has rarely been stable, and historians have documented extreme cold spells in the 17th century or devastating droughts in biblical times. It was, after all, the catastrophic Lisbon earthquake in 1757 that for Voltaire ended the 18th century's age of optimism. Yet the mountain of scientific evidence produced by the UN's Intergovernmental Panel on Climate Change points to the role of global warming as a force multiplier for more frequent and extreme weather events, giving the planet less time to recover from one natural disaster before the next one strikes, thereby producing a cumulative destructive

effect. Climate change is arguably the first truly global security challenge in that, according to UN reports, only 11 out of the current 193 UN member states do not currently experience its impact in one form or another. Any organization, like NATO, that tries to address climate change thus faces the dual challenge of responding to individual flash points (such as extreme weather events putting lives at risk or leading to social breakdown), while simultaneously understanding how climate change is shaping the future of global geopolitics, making future conflicts over land, water, or resources more likely in the longer term. Getting these predictive models right is essential if the allies are to devise the preventive strategies to head off the worst-case scenarios while mitigating the worst consequences. Thus, it was no surprise that US President Joe Biden's administration ordered a National Intelligence Estimate of the security implications of climate change as one of its first acts upon taking office.

NATO's military forces have become aware of how climate change impacts their own ability to operate.

The military forces of NATO countries have played an increasing role in responding to extreme weather events in recent years. In fact, the first time the NATO Response Force (NRF) deployed was to Kashmir in 2006 to help Pakistan restore infrastructure and communications after a major earthquake. In recent years, alliance military forces have been increasingly pulled into civil defense tasks. British, French, and Dutch marines and engineers have gone to the Caribbean to restore order in the wake of hurricanes that have paralyzed the normal process of government. Military firefighters and aircraft have been mobilized to combat forest fires in the United States, Canada, and Europe. British and German forces have been called up to build flood defenses, evacuate flood victims, and build pontoon bridges or reconnect power lines. Military hospitals and medical personnel have helped local authorities cope with extreme heatwaves affecting the elderly and other populations at risk. The

military with their rapid-response capabilities have become the partner of choice to the civil emergency authorities within NATO countries in responding to climate-driven events. This has also been the case with other shocks that may well be linked indirectly to climate change, such as the coronavirus pandemic, which result from stresses on the natural environment and the interface between animals and humans. The pace of military deployments within alliance member states has reached such an extent that some NATO commanders are worried that this could have deleterious consequences for training and the retention of war-fighting skills.

In the process of deploying to climate-stressed zones, characterized by extreme weather events or hotter or colder conditions, NATO's military forces have become aware of how climate change impacts their own ability to operate. For instance, the Pentagon has assessed that two-thirds of US military bases, especially along coastlines, are vulnerable to rising sea levels or extreme weather events. Hampton Roads in Virginia, which is important to NATO as the home of Joint Forces Command Atlantic and the US Second Fleet, has been assessed as especially vulnerable. Hotter temperatures, greater frequency of high winds, storm surges, or increased salinity in the oceans have led NATO military commanders to review both the resilience of their equipment (for instance, the performance of ship turbines) or the dependency of military operations on fossil fuels. In Afghanistan, for instance, helicopters and vehicles needed more than average maintenance because of dust storms and persistent high temperatures, while the high consumption of gasoline required lengthy and dangerous supply lines from Pakistan into Afghanistan that jihadists targeted. At one stage, NATO planners calculated that a \$2 gallon of gasoline cost over \$100 by the time it reached a NATO ISAF unit in Helmand or Kunduz.¹ This certainly motivated the allies to experiment with smart-energy camps, powered by solar and wind

¹ Amory Lovins, "DOD's Energy Challenge as Strategic Opportunity," Joint Forces Quarterly, Issue 57, second quarter, 2010.

generators, which were demonstrated at NATO trials such as the annual Capable Logistician exercise. The Pentagon, with an annual fuel bill surpassing \$ 25 billion, has been graded as the 43rd “country” in the world in terms of fossil fuel emissions.² Accordingly, NATO military forces have faced the twin task of fine-tuning their modus operandi and added value in supporting the humanitarian response to climate change, while adapting their own doctrine, training, and capabilities to operate in these more demanding conditions.

NATO’s purpose has always been to defend its populations against challenges that evolve into concrete security threats and that require military forces or military organizations. The criterion has been the added value that the alliance can bring to bear. Sometimes this means that NATO is in the lead and generates the bulk of the response from within its own ranks and capabilities. This is obviously the case with territorial collective defense, particularly as it applies to Russia’s military buildup on NATO’s eastern borders at the present time. In other cases, the alliance functions in a supporting role, integrating its capabilities with those of other institutions and actors as part of a networked, comprehensive approach. What NATO brings to the table here are its analytical and intelligence cells, its strategic planning and foresight capabilities, its political consultation, joint assessment and information-sharing structures, its web of partnerships with non-member states and other international organizations, and its political-military command and control and operations network from HQ to the regional level. Few other organizations have all this machinery under one single roof. Consequently, as the climate change community has gradually accepted a role for the military in addressing climate change—after initially fearing that this would put too much emphasis on adaptation at the expense of the primary political goal of reducing carbon emissions—pressure has built on NATO to use its spectrum

of capabilities in a more coherent, systematic way. The mounting urgency and universality of global warming require every institution to step up and play its part within its means and capabilities. The broad spectrum of NATO assets means that it can contribute in multiple supporting ways to a UN-led effort both to reduce global warming and adapt to the climate impacts that are already locked in, even if that warming can be limited to 1.5 to 2 degrees Celsius over pre-industrial levels. The question now is how to optimize all these NATO assets so that the alliance can receive and transmit expertise and make its contribution count.

NATO Secretary General and former UN climate envoy Jens Stoltenberg has usefully led the way. At the Brussels summit in June 2021, he declared that climate is not just a trans-boundary ecological crisis but a security crisis as well. Stoltenberg skillfully used his NATO 2030 reflection exercise and the review carried out by the group of experts he appointed to generate public pressure and build the case (against initial skepticism from some allies) for a formal NATO role in addressing climate change. Before the summit, NATO foreign ministers endorsed a joint analysis of the security implications of climate change. One paper recognized climate change not only as a threat to human security per se, but also as a force multiplier which could accelerate and intensify preexisting tensions and conflicts, many of which, because of their location close to NATO’s borders, could impinge directly on the security of the alliance.³ At the Brussels summit, the allies adopted a Climate Change and Security Action Plan broken down into four broad implementation categories. These are awareness, mitigation, adaptation, and partnerships.

Awareness

In the first area, awareness, NATO possesses a range of sensing and mapping instruments that can collect data on climate trends and correlate and fuse this data into a composite picture. NATO navies, especially the

2 Neta Crawford, Pentagon Fuel Use; Climate Change and the Costs of War, Boston University paper, June 2019.

3 Neta C. Crawford, Pentagon Fuel Use, Climate Change, and the Costs of War, Brown University, 2019.

United States, have sophisticated oceanographic and meteorological tracking sensors that can plot changes in the jet stream or in the melting of the Arctic polar ice. The NATO Centre for Maritime Research and Experimentation at La Spezia, Italy, has been doing this work in the Mediterranean and Atlantic for many years and has its own research vessel, the Alliance. As NATO develops more capability in space using a mix of national military and commercial satellites, it will also be better able to track ocean warming and land phenomena such as desertification. The EU's new generation of Copernicus satellites are already able to do this. This data collection and fusion will not enable NATO to predict outbreaks of popular protest or specific migration flows from arid rural communities, but by tracking climate-stressed areas, it can indicate likely pressure points and feed into an international watch list or early-warning system. The question is how and where will the alliance plug in its strategic forecasting and modeling: directly into the UN (UN Environment Programme, Intergovernmental Panel on Climate Change), into the EU or the NGO climate change community, or back to allied governments to use as they see fit? Canada has offered to host a NATO Climate and Security Centre of Excellence to foster the exchange of information and expertise among allies and partners. One of its first tasks could be to set up a remote data-sensing network where forecasting and modeling could be centralized and made immediately accessible to the global climate community of interest (UN and agencies, international bodies, governments, and NGOs) on a pooling basis. This could extend to complementarity in the sharing of satellite observation data based on common links and protocols. An exchange between NATO and EU satellite data would be a good place to start. Another task is to see how data can be used within NATO to support evidence-based decision-making.

Mitigation

In the area of mitigation, the alliance is targeting the reduction of its own CO₂ emissions from its military equipment and operations. Here it is under pressure

from the NGO community to set the same targets for emissions reductions that allied countries have agreed to in their Nationally Defined Contributions to the COP 26; that is to say, around 50 percent by 2030 and net zero by mid-century. Given the priority of collective defense in NATO at the moment and the need for fossil-fuel-guzzling fighter aircraft and tanks, meeting this target may prove impossible. Collective defense also necessitates large-scale military field exercises rather than the table-top simulations that were used in times of lesser tension.

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Yet NATO forces can go green in many other areas, such as transporting supplies by rail and waterways rather than road. Battery-operated vehicles and electric-powered robots will certainly play a larger role in logistics and rear operations. Drones will reduce the numbers of aircraft and ships that the alliance needs to maintain and deploy. 3D manufacturing will also allow for cheaper and more energy-efficient production of many of the weapons systems and components that NATO armies use, and the smart-energy camps already referred to can significantly reduce the operating costs of the large number of headquarters and bases in the NATO command structure. NATO is a natural venue for allies and partners to organize trials and experimentation, exchange best practices and experience, and use NATO's system of certification and STANAGs (standardization agreements) to set common standards and promote interoperability for green-energy equipment. Currently the alliance is working on a common methodology for measuring military CO₂ emissions. It will be important for this to be rigorous, as it will be scrutinized carefully by the NGO community, who no doubt will be pushing, too, for NATO to show transparency and accountability in publishing the results annually. The willingness and ability of the allies to input reliable data in a common timeframe will be crucial to the credibility of the

process. Ideally these climate-related inputs should be part of NATO's defense planning process and setting of capability targets, which would help ensure that they receive high-level attention in capitals. In view of Secretary General Stoltenberg's push for more common funding, NATO could consider setting up a Green Fund to help finance trials and demonstrations and to help the less advanced allies make the transition to green energy.

Adaptation

The next line of effort concerns adaptation. This is helping other countries to adapt to the challenges of climate change as well as using NATO's military forces to respond to the extreme weather events and natural disasters that were described earlier. This area is more tentative and even problematic for the alliance. In the first place, it depends on how active NATO will be "out of area," and in conducting nation building, stabilization, and training missions beyond its borders now that its mission in Afghanistan is over. Although Stoltenberg has pushed the training of local forces as a future role for the alliance, and as a cheaper alternative to risky interventions, the current primacy of collective defense within the alliance will limit the appetite to take on new operations. Certainly, NATO is continuing its training mission in Iraq and is using regional training centers in Jordan, Kuwait, and even Mauritania. It has signed a technical cooperation agreement with the African Union and has a liaison office in Addis Ababa—the structures are there to work on climate change resilience issues if the will and resources are there on both sides. Yet it is the European Union that is launching new missions at the moment, with EU training missions in Mali, Burkina Faso, and most recently Mozambique. The local partners are mainly interested in military assistance to fight jihadists and anti-government militias. So it is not certain that they will want to divert scarce resources to climate change resilience, even if NATO has good products to offer. When it comes to emergency relief, NATO forces, particularly the rapid-reaction units, have the capacity to provide immediate assistance, for instance in the

distribution of relief supplies or the repair of telecommunications infrastructure. Yet, at a time of constant tension with Russia, the North Atlantic Council will be reluctant to allow these precious spearhead forces to depart to the other end of the globe, no matter how noble the cause.

Allies may also be unwilling to contribute forces to NATO humanitarian missions if there are no common funding arrangements and they have to pick up all the costs themselves for contingencies that they could not have foreseen. This cost-sharing debate cast a long shadow over the deployment of the Response Forces (NRF) to Kashmir in 2006. (The fact that Poland, Spain, and Italy happened to have been the main NRF contributors at the time of the earthquake meant that they bore most of the costs of what was supposed to be a joint NATO operation.) Moreover, allies tend to use their own national forces to deal with natural disasters at home, such as floods, storms, and bush fires. Yet there are exceptions, such as the assistance that Turkey and Greece have sent to each other in the aftermath of earthquakes or the water-spraying aircraft that some allies sent to Greece to douse forest fires last summer. Covid-19 has also brought some useful cross-border cooperation among Europe's militaries, as in patient transfers. If we link migration to climate change (as we will undoubtedly do more in the future), then NATO can claim a useful supporting role to the EU in working with its border agency, FRONTEX, in monitoring migration across the Aegean Sea and in providing intelligence and tanker capacity to the EU's Sophia maritime mission off the coast of Libya.

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Yet this point only underscores that the EU has most of the same military assets as NATO for emergency relief and far more civilian resources as well. Its Crisis Management Centre can do the same clearinghouse job, matching demand with supply, as the alliance's Euro-Atlantic Disaster Relief Coordination

Centre. The latter is often activated during crises but not much used, although in all fairness it was somewhat more active in organizing the transport of medical supplies and protective clothing between allies during the Covid-19 pandemic. The EU's humanitarian aid office, ECHO, is also more closely tied to the UN's Office for the Coordination of Humanitarian Affairs (OCHA) than the NATO structures. This is not to argue that NATO has no role in Adaptation. Individual circumstances will always matter. But there are plenty of other institutions and options besides NATO in this area. Hence, the alliance will need to ponder carefully on where its niche roles and added value reside. A dialogue with the EU, UN, and regional organizations might at least be useful to share experiences and lessons learned.

Outreach

The last area to consider is outreach. As NATO looks to build on the past success of the Partnership for Peace and to offer its numerous partners new forms of cooperation beyond participating in NATO's operations in Afghanistan and the Balkans, climate change seems an obvious topic to put on the table. Everyone is now grappling with the challenges of warming temperatures and decarbonization. Everyone will thus have experiences to share. This could embrace too the ways in which climate factors are being incorporated into national strategies, military doctrines, force posture reviews, and capability development programs. Yet again, there are other platforms for debating these challenges, not least the annual COPs and all their related preparatory and side events. Moreover, many of the countries in the front line of climate change, such as in North Africa, the Middle East, and Central Asia are only loosely connected to NATO. Groupings such as the Euro-Atlantic Partnership Council, Mediterranean Dialogue, and Istanbul Cooperation Initiative, where NATO once met with its regional partners, have lapsed into obsolescence during the years when the value of partners to the alliance was first and foremost as troop and force contributors for the Balkans, Libya, and Afghani-

stan. After years of disinterest, it is far from certain that these consultation mechanisms can be revived. NATO may well need to seek out individual partners with a specific climate commitment who are willing to contribute financially to NATO's trust funds and training programs for climate mitigation and adaptation. Sweden, Switzerland, Finland, and Austria spring to mind here, given their activism in the UN on climate and security, the size of their foreign aid budgets, and their strong links to the alliance.

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There is one area where NATO can play a leading role and that is public education. In our polarized societies, where politicians and journalists have sunk in the public esteem, the military still commands respect and a broad audience. Groupings of retired generals and admirals, such as the Global Military Advisory Council on Climate Change, have done a lot to raise the profile of the climate-security nexus within the wider climate change community. NATO equally has credibility on both sides of the Atlantic and beyond. When the secretary general gives speeches and interviews on the mounting security threats that could arise from a failure to keep to CO₂ reduction targets and other climate agreements, he attracts an audience and type of attention not granted to every political figure.

The well-organized units that NATO has established to deal with fake news, disinformation, and propaganda in the context of Russia's hybrid warfare campaigns could also be used to rebut climate change denialism and the spreading of disinformation or even sensationalism at both ends of the climate spectrum. Here the awareness and data-fusion capabilities of the alliance referred to earlier come together with NATO's public diplomacy and outreach activities. Indeed, NATO's public education role in climate change, as a source of trusted, reliable information and assessment could become over time more important than its role in adaptation. Mitigation is, on the other

hand, something that NATO cannot really avoid if it wants to be seen as a responsible global citizen putting its own house in order first.

Conditions for Success

There are many useful roles that NATO can play and constructive things that it can do to help address the security implications of climate change. Yet three conditions will govern its effectiveness over the long run.

First is maintaining focus. It is all very well getting a positive headline at a NATO summit for a fine-sounding declaration of good intent. But translating intentions into action and concrete achievements is far more difficult. Climate change is all about taking decisions and agreeing on policies today, with results only visible in two or three decades. It is easy for politicians to lose interest and focus. Moreover, NATO has launched itself into the climate change debate without giving the NATO HQ staff who must carry the work forward (Emerging Security Challenges) a major injection of new resources and personnel. The Science for Peace and Security research program, through which NATO has given its partner countries small but useful grants to investigate climate challenges and remedial technologies, has not been significantly increased in funding levels, either. Upgrading these staff structures and cooperation programs will show others that NATO is serious. Yet sustained focus will be needed from senior NATO leadership and ambassadors in the North Atlantic Council to ensure that the NATO machinery develops concrete results.

A second condition of success is to build the right network. When tackling emerging security challenges, NATO has quickly realized that it needs to build relationships with outside actors that often have expertise and capabilities that the alliance does not possess in house. In dealing with cyber defense, the alliance formed a NATO-Industry Cyber Partnership and signed a technical information sharing agreement with the EU. Within the first two years, NATO had concluded a dozen individual arrangements for coop-

eration with cyber security companies and tech firms. Cooperation with police and law enforcement was also essential as it was for NATO's activities in countering terrorism. Energy companies came to the table to advise NATO on how to deal with energy security. Climate change will be massively more challenging for NATO when it comes to building networks. As COP 26 in Glasgow showed, there is an enormous ecosystem of NGOs, academic and scientific groupings, public policy lobbies, and private consultancies and companies seeking to influence governments. Thousands of them descended on Glasgow, often forming coalitions with governments on issues such as methane emissions or deforestation.

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NATO will need to learn to navigate this ecosystem and carefully choose those partners it can—and needs to—work with. Too narrow or too large and diffuse are the twin dangers to avoid. The EU is an obvious partner and the security implications of climate change will undoubtedly feature prominently among the new areas for cooperation in the third NATO-EU Joint Declaration, which is currently being negotiated in Brussels and will complement both the EU's Strategic Compass and the alliance's next Strategic Concept. There are also groups that have offered their expertise to NATO. One is the Brussels Dialogue on Climate Diplomacy, which drafted a report by prominent climate scientists and policy experts last June as a contribution to the secretary general's NATO 2030 exercise. It described the impact of regional climate change on local and transnational human security, focusing on areas like North Africa and the Middle East. Regularly consulting such groups can help NATO officials stay abreast of the science. ENVSEC, the Environment and Security Initiative linking the UN to

other international organizations in climate science, is another that NATO should join as a full member.

Finally, there is the need for rigorous assessment. In any large bureaucracy there is a tendency for process to take over. Committee meetings, report writing, consultations with partners, and public diplomacy events are all important for the policy process, but they can also create the illusion of progress and what Ernest Hemingway described as activism rather than activity. NATO needs to establish benchmarks and timelines in all the categories listed in its Climate and Security Action Plan. The NATO summit in Madrid at the end of June can produce an interim assessment one year after the Brussels summit. The alliance's new Strategic Concept can point to a change in the importance NATO is attaching to climate change after the barely single sentence at the tail end of the last concept adopted in 2010. The new concept can also provide more granularity as to how the alliance can match and adapt its planning and capabilities to climate security tasks. The next secretary general can then give a detailed readout of NATO's contribution and progress in meeting its benchmarks in a dedicated section of the Secretary General's Annual Report in January 2023.

All the aforementioned analysis suggests a number of recommendations for NATO to consider as it drafts its new Strategic Concept.

- Broaden NATO's human-security paradigm to include crisis risks from climate stress, orienting this work toward a prevention- and resilience-based approach.
- Create a shared framework for assessing and responding to conflict risks and threats to civilians stemming from climate disruptions. Integrate this framework into an expanded early-warning system that accounts for the complex chain of impacts that climate change can have on civilians and political stability.
- Expand NATO's early-warning system to account for potential crisis risks from climate stress. This will require the development of a robust analytics and intelligence system that incorporates a variety of data to produce a multidimensional human security model that defines clear metrics to assess these risks.
- Include climate-fragility risk analysis as part of the planning and pre-deployment training for stabilization operations beyond NATO's borders and require the presence of environmental advisors in every NATO mission.
- Run annual foresight, simulation, and scenario-development exercises on climate disruptions.
- Recruit a special advisor to the NATO secretary general on climate and environmental security issues. This individual could also act as the secretary general's special representative, similar to the role of the existing special representative for women, peace, and security.
- Improve the integration of climate change considerations in the NATO capstone concepts, doctrine, and guidance documents such as the Allied Command Operations Comprehensive Operational Planning Directive.
- Conduct case studies to analyze the impact of climate change and environmental degradation on countries and areas of strategic interest to the alliance and do contingency planning in terms of what this could mean for NATO's posture and capabilities if the alliance were called upon to provide assistance.
- Support NATO partners with climate and environmental risk analysis.
- Support NATO partner countries with humanitarian assistance as soon as a climate disaster occurs.

Postscript

Russia's unjustified, unprovoked, and frankly inexplicable invasion of Ukraine in the last days of February has not only cast a dark cloud over Europe's security, but also forced the alliance to recalibrate all its policies and priorities in the run-up to the Madrid summit. No doubt the now very real and urgent threat that Russia poses to NATO's member states and the need to bolster the alliance's collective defense in the Baltic and Black Sea regions will assume even more importance in the new Strategic Concept. At first sight, as

additional troops, ships, and aircraft are deployed to Poland, the Baltic states, and Romania, defending democracies against Putin's recklessness will seem a higher priority to NATO governments than meeting higher CO₂ emissions standards. Providing diesel fuel, fighter jets, and arms to the Ukrainian forces resisting the Russian onslaught will be more urgent than worrying about the environmental impact of the intense fighting on multiple fronts throughout Ukraine. Given the massive stakes for Western security, that must be the imperative.

This recalibration is already reflected in European governments looking to procure more fossil fuels from Qatar, Norway, Algeria, and the United States to cope with any further reductions in gas and oil supplies from Russia. If the international sanctions against Russia extend to oil (as the US Congress is proposing), some European governments will be tempted to restart coal-fired power stations on a temporary basis. Russia's belligerence has also led some EU countries, such as France, to make the case for more civil nuclear reactors and for natural gas as a transition fuel en route to a carbon-neutral economy by mid-century. Western governments want to avoid at all costs a situation where consumers on both sides of the Atlantic, worried about rapidly rising energy bills and inflation, withdraw their current high support for the sanctions on Russia because they blame these for the fall in their living standards. Balancing a tough line against Russia with social peace and resilience at home will be a major challenge for alliance leaders in the months ahead. Therefore, one immediate impact of the war in Ukraine will be to push energy security higher up the NATO agenda and to integrate more coherently the alliance's climate change and energy security policies, which have tended to evolve on separate tracks in the past.

There are two other specific environmental considerations that can be mentioned at this still early stage in Russia's invasion of Ukraine. One concerns environmental conflict itself. In just the first ten days of Russia's invasion, Russian forces attacked two of Ukraine's nuclear facilities. The first was the

now-buried nuclear reactor at Chernobyl, site of the famous radioactive leaks back in 1987. This already raised the alarm regarding the reckless Russian tactic of fighting in the vicinity of nuclear plants, trying to capture them or even firing at them. This was the case also when Russian forces attacked facilities belonging to the Ukrainian nuclear plant at Zaporizhzhia, where six of Ukraine's 15 nuclear reactors are located. The international reaction to these Russian attacks was predictably quick and outraged with even more draconian sanctions being discussed. Russia's attacks on nuclear plants also risk radioactive material being carried by the wind to western Russia itself. Given the propensity of Russia's forces to disregard international agreements and norms in their operations in Ukraine, further acts of environmental terrorism against water, food, and fuel and power infrastructure in Ukraine cannot be ruled out. NATO will need to think quickly about what it can do to help Ukraine protect this critical infrastructure and to make sure it can limit the Russian capacity for nuclear and environmental damage, should Putin actually invade a NATO member state.

Russia's belligerence has also led some EU countries, such as France, to make the case for more civil nuclear reactors and for natural gas as a transition fuel en route to a carbon-neutral economy by mid-century.

The second consideration concerns defense budgets and equipment modernization. As a result of the Ukrainian crisis, several allies, and partners such as Sweden, have announced plans to spend more on new equipment and capabilities. Germany's Chancellor Olaf Scholz has even announced a modernization fund for the Bundeswehr, totaling €100 billion, something unthinkable just a year ago and before Putin's aggression. Much of this extra money will no doubt be spent on spare parts, training and increasing the readiness and deployability of existing equipment. Yet, as new

and more technologically advanced systems and platforms are considered, there is no reason why fuel efficiency standards, carbon footprints, and green-energy propulsion should not be factored in to the feasibility studies and requirements lists of NATO and partner member states. With all this extra money for defense suddenly coming on stream, this is an opportunity for NATO to push ahead with its climate agenda, which does not have to be incompatible with its military operational priorities.

In the same week that Russia sent its troops into Ukraine, the International Panel on Climate Change produced its latest report, indicating that 50 percent of all the inhabitants of this planet will be impacted to severely impacted by climate change with current global warming trends by 2040. Even an event as catastrophic in humanitarian and political terms as Putin's invasion of Ukraine cannot absolve NATO of its responsibility to keep its focus on the potentially even worse catastrophic effects of climate change.

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