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Briefing Note
Using foresight tools to manage systemic risk

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Summary
Assessing climate security risks can be challenging, as there are significant and multi-faceted uncertainties involved. For practitioners who are looking for conceptual approaches to understanding and evaluating such risks, foresight tools offer a practical toolset for formulating robust responses, even in the context of significant uncertainty. This briefing note will discuss various options for doing engaging into foresight. It will also point to dilemmas and lessons learned.

Why foresight techniques are relevant to climate security Challenges

Foresight tools employ skills that we all use intuitively – thinking through how situations might evolve or turn out, working with limited information, feeling for the limits of our knowledge and formulating approaches that seem optimal given what we know and can reasonably/plausibly speculate. By providing structures that support these kinds of approaches, foresight tools offer an organised way of asking, "What if?", and can support strategies to manage systemic risk.

Although people often draw upon their personal experiences to guide judgments, formal risk assessments attempt to objectively weigh the relative risks of alternative courses of action. The connections between environment, energy and security (EES) are not, however, necessarily obvious. Most climate risks are not only unique according to circumstance and geographical location, but also according to critical vulnerabilities and the ability of local institutions and communities to respond to variable combinations of factors.

Institutions and practitioners faced with devising responses to climate risk may not yet be familiar with the array of formal tools that exist, may not have integrated them into their work, or may not appreciate their utility in the face of complex risks like the ones posed by climate change and other environmental drivers. Incorporating foresight tools into planning and decision support could offer benefits in supplanting analysis approaches that look for the most likely outcome ("What is most likely to happen?") in favour of devising strategies that are robust across a range of plausible outcomes ("Are we prepared if X, Y or Z happens?"). Failure to engage in climate risks at the planning stage may result in acute security impacts that were not anticipated and therefore are very difficult to resolve. In contrast to concepts of energy and environmental security being viewed as external and largely peripheral concerns, it is important to establish that assessing risks is largely a complex, future-oriented modeling exercise.

Building familiarity with the basic skill sets for using foresight tools can provide practitioners with practical ways to strengthen institutional responses to climate and environmental risk, and enable decision-making that can better cope with significant levels of uncertainty. It allows an examination of the strategic implications of potential futures, to identify necessary actions and move toward their implementation.[1]

Actors ranging from national security planners determining what defense assets will be required in 15-20 years, to local climate adaptation planners deciding which measures are most essential, can use foresight tools to support decision making for climate risk management.

Foresight tools

Key foresight tools include gaming and scenario-building, which is used in anticipatory governance.

Scenario-building involves describing plausible futures which can be used for risk assessment and contingency planning, to assess the robustness of current and future strategies to respond to the situations outlined in those scenarios. In developing energy and environmental risk assessments in different parts of the world, what is of most interest are the starting conditions for scenarios. What unique combinations of conditions might we encounter in the future, what are key vulnerabilities in these complex systems, what are our critical uncertainties in understanding these system dynamics? In this sense, we are not planning for security *per se*, but rather exploring the environment within which planning might take place. The challenge is to create robust and objective descriptions based on scientific understanding.

Scenarios are a way of addressing complex topics and how they may interact in the future, stepping away from prediction to consider what forces may lead to unpredictable outcomes. In a sense, scenarios channel uncertainty to allow consideration of those factors we take for granted, and how those unexamined assumptions can leave us vulnerable.

[1] For more on these tools, see 'The World in 2050: A Far Future Scenario' in the conference report *Planetary Security: Peace and Cooperation in Times of Climate Change and Global Environmental Challenges*, p. 93 https://climateandsecurity.files.wordpress.com/2012/04/planetary-security-2015.pdf

One example comes from NATO's Framework for Future Alliance Operations (FFAO),[2] a planning document which provides recommendations for Alliance forces on what capabilities they may need to develop to operate successfully in the security environment out to 2035.

The 2015 FFAO references climate change as a factor in challenging access to and use of the global commons, and creating risks through the disruptive impact of migration, large-scale disasters and state to state conflict. The most recent update to the FFAO includes scenarios such as:

> 'Continued, on-going, or newly emerging environmental concerns, as well as climate change could trigger state on state conflict… Disruptive migration is driven by turmoil in failed states that erodes personal and family safety and security, economic disparity and the hope for a better life, natural disaster, disease, and famine. Non-state actors, and unforeseen events (environment/natural disaster/climate) are principal enablers for disruptive immigration.'

As part of the broader FFAO, these scenarios help to inform the NATO Defence Planning Process. Scenarios are commonly used in military planning and training, and increasingly can be tailored to address climate-related factors, not only as contributors to potential conflict, but more often in 'non-kinetic' military operations an disaster response. Scenarios also form the basis for gaming and simulations.

Gaming is a way of developing and testing scenarios that incorporates human decision-making, and allows players to observe the impacts of their decisions within the context of the game. This can prepare decision-makers for developing strategies within their institutions by familiarizing them with dilemmas and dynamics they may encounter in the future.[3]

Energy and environmental factors can also be highlighted in more traditional wargames, used both in civilian and military education to work through responsibilities and consequences for both short and long-term climate changes. Military officers at the US Air University Wargaming Institute included environmental disasters into their training beginning in 2011, and the effects of changes to environmental conditions have also been gamed as to their contributions to refugee flows, terrorism and insurgency.[4]

One of these, 'Food Chain Reaction, A Global Food Security Game',[5] simulates a crisis in the global food system in order to explore how the private sector, governments and institutions might respond. Players representing each of these sectors role-play different reactions, negotiations and decisions to manage the crisis, generating a chain reaction of consequences that reveal the complexities and interdependencies within the global food system. As a teaching tool, this prepares decision-makers for addressing these complexities to manage systemic risk in their professional contexts.

Anticipatory governance is a systems-based approach for enabling governance to cope with accelerating, complex forms of change, and to get ahead of crises rather than habitually managing their aftereffects. It integrates scenario tools into preventative approaches to systemic issues, including climate and others.[6] Foresight is one of three key elements of anticipatory governance, along with mission-based management and budgeting; and monitoring and adjusting policy relative to initial expectations.[7] The foresight component

[2] North Atlantic Treaty Organization Supreme Allied Commander Transformation, 'Framework for Future Alliance Operations', August 2015. Http://www.act.nato.int/images/stories/media/doclibrary/ffao-2015.pdf

[3] Catherine M. Schkoda, Shawna G. Cuan, and E. D. McGrady, 2016. "Examining Long-Term Climate-Related Security Risks through the Use of Gaming and Scenario Planning," Marine Corps University Journal, https://www.usmcu.edu/sites/default/files/MCUPress/MCUJ_si2016_CCP.pdf

[4] 2O14 NATO Jean Monnet Advanced Study Institute 'Enhancing Strategic Analytical Capabilities in NATO Partner Countries', Information and Research Activity 'Towards a More Resilient European Neighborhood: Security Cooperation and the Management of Current and Future Threats in Europe's Strategic Orbit', 15-21 May 2014, Kyiv, Ukraine. http://ainstud.at.ua/2014_Jean_Monnet_Information_and_Research_project_.docx

[5] Food Chain Reaction, http://foodchainreaction.org/ – accessed November 2016.

[6] The Project on Forward Engagement, 'Anticipatory Governance', https://forwardengagement.org/anticipatory-governance/ – accessed November 2016.

[7] Leon S Fuerth and Evan MH Faber, 'Anticipatory Governance – Practical Upgrades: Equipping the Executive Branch to Cope with Increasing Speed and Complexity of Major Challenges', National Defense University Press, October 2012.

works to identify early indicators or 'weak signals' to monitor. The potential consequences of these signals are then examined by using them as drivers in scenarios; these scenarios allow for evaluation of alternative policy responses.

Challenges and ways to overcome them

In the context of climate security risk management, grounding foresight exercises in relevant readings of climate science can make them better-informed and more likely to meet the challenges. For example, it may be important to distinguish between climate variability (weather) and climate change, depending on the timeframe the foresight exercise covers – e.g. when assessing periodic droughts that affect agricultural productivity in the Middle East vs. the long-term drying trend in the region.[8] When working with climate impact scenarios – for example on water availability or agricultural productivity – including climate science experts in foresight exercises can support accurate reading of those impact scenarios, including the level of uncertainty inherent in a particular scenario.[9]

As well, there are a number of challenges around integrating natural and social science information to provide actionable advice to policy makers, given the different analytical methods, language and scales used in each discipline.[10] For example, reconciling the differences in scale that exist in the different kinds of information available about the present and the future, e.g. wanting to know impacts and vulnerabilities at the community level but being equipped to think about the future primarily in terms of broad trends (especially with regard to climate change). Researchers in this field may also underestimate the complexity of the present: there is rarely a single interpretation of current security situations, so even scenarios, while attempting to simplify, need to account for this complexity.

Expectations may also differ between climate scientists and the security community around the purpose and utility of climate models, especially around their predictive capabilities. Social scientists working to inform decision-making to address climate-related vulnerabilities seek minimal uncertainty in models' predictions of the future climate. For climate scientists, a model is a tool used to explore and learn about the earth system, to understand how it will behave in response to a range of forcing actions; while climate science can tell us much more about our future than any other science, expecting a high degree of certainty about this future may be unrealistic.

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https://www2.gwu.edu/~igis/assets/docs/working_papers/Anticipatory_Governance_Practical_Upgrades.pdf

[8] Kirsty Lewis, 'Climate science in climate security scenarios', *Climatic Change* (2014) 123: 11. doi: 10. 1007/s10584-013-0945-7.

[9] Ibid.

[10] Kirsty H Lewis and Timothy M Lenton, 'Knowledge problems in climate change and security research', *WIREs Clim Change* 2015. doi: 10.1002/wcc.346.