COMMENT

THE DANGERS OF UNDERSCOPING RISK

by Rod Schoonover

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Institutions that don't evolve in step with changing conditions create new problems. At best, such institutions increasingly fail to meet the needs of their intended beneficiaries, representing wasted resources and missed opportunities. At worst, such outdated institutions themselves exacerbate or become part of the problems they were constructed to address.

Arguably, one such institution is the national security apparatus of the United States. While serving for a decade in the U.S. intelligence community—including leading their efforts on climate change and related topics—I grew concerned that the doctrine and architecture of the security community were increasingly mismatched to the threat landscape shaped by a changing planet. While many threats persist from the Cold War era, such as weapons of mass destruction, great power clashes, and sovereignty skirmishes, people and nations are facing an additional set of threats.[1] Many of these arise from stressors from ecological disruption, such as climate change, infectious diseases, nutrient overabundance, resource depletion, pollution, plastics, and destabilization of the biosphere.

Since leaving government service in 2019, I have continued to engage in efforts to analyze, articulate, and annunciate the security dimensions of ecological disruption, which I believe are dangerously underappreciated by the security community.[2] In the case of governmental institutions, those that routinely underscope ongoing and future risks are likely to deliver ineffective and shortsighted policy responses which, in turn, could contribute to conditions that undermine institutional legitimacy.

In their provocatively titled and forward-leaning article *4°C*, J.B. Ruhl and Robin Kundis Craig arrive at similar conclusions with respect to systems of governance in the face of nonlinear and cascading planetary change. The authors effectively argue that governance measures, particularly adaptation planning, will fall short if institutions fail to embrace the real possibility that the planet will blow well past 2° Celsius (°C) above pre-industrial temperatures. Further, they argue that 4°C is a better target for adaptation planning because this metric better captures the future risk the nation faces. Ruhl and Craig are keenly aware that serious talk of a possible 4°C future will almost certainly trigger accusations of "doomism" from various critics. While I believe that such critiques are fair in many situations, such as communicating climate science to the public, the circumstances are different when assessing and planning for risk.

I concur with the authors that the 2°C target is too conservative for adaptation planning and governance, for two reasons. The first is that 2°C is indeed likely to be surpassed, given our physical and societal trajectories. In its sobering March 2023 AR6 Synthesis Report, the Intergovernmental Panel on Climate Change (IPCC) writes "All global modeled pathways . . . that limit warming to 2°C . . . involve rapid and deep and, in most cases, immediate greenhouse gas emissions reductions in all sectors this decade."[3] Emissions reductions are happening, due in large part to multilateral agreements and market forces, but nowhere close to the scale or speed necessary. Unfortunately, at this juncture, the findings of the Sixth Assessment Report seem unlikely[4] to spur transformative change any more than did the Fifth, Fourth, Third, etc.

The second reason is that planning only for the comparatively[5] safer scenario of 2°C is, simply put, bad policy. Ruhl and Craig argue "the 2°C assumption of maximum warming no longer works in the adaptation modality," but from its inception, this temperature target was too probable to be employed in such a fashion. Indeed, any type of planning that is predicated on assessing risk is fraught when it lowballs the risk. As alluded to in the old adage "hope for the best, prepare for the worst," planning assumptions involving risk should be tethered to reasonably likely high-impact futures (rather than unlikely and less impactful ones).

1. Such "actorless" threats are difficult for the traditional security community to act upon, much less conceptualize, since there are no proximate actors to engage with militarily or diplomatically.
2. For example, in response to President Joseph Biden's 2021 tasking of the intelligence community to produce a National Intelligence Estimate on climate change's national security implications, the intelligence community produced instead a report that largely examined climate change's geopolitical ramifications rather than addressing it as a threat in and of itself. The community also tends to regard biodiversity loss, pollution, plastics, invasive species, and other stressors as environmental policy issues with little-to-no impact on security.
3. Intergovernmental Panel on Climate Change, *Climate Change 2023 Synthesis Report: Summary for Policymakers* 21 (2023), https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf.
4. This assessment is partly predicated on arguments made later in this paper.
5. However, in no way can 2°C be considered safe in absolute terms.

A highlight of the article is the authors' invocation and extension of the concept of *anticipatory governance*. Even in times of relative stability, the precepts of anticipatory governance aim to proactively identify risks in advance and act on them before they become severe. Such an approach steers away from the well-trodden, default path of addressing problems as they arise, an approach that greatly reduces policy choices and leads to suboptimal and, often, maladaptive outcomes.

Critically, the authors inject *redesign* into the discussion. This is a welcome—if brutal—recognition that seawalls, heat-tolerant crops, community relocation, and other incrementalist engineer-y solutions aren't going to cut it on their own in a highly disruptive high-warming scenario. Without embracing anticipatory redesign in the face of increasingly unfamiliar, unanticipated, and sometimes hostile stresses, we are essentially gambling that social infrastructure will evolve rapidly enough to meet the needs of people and institutions. This approach is woefully out of step with the reality that essentially every sector, institution, and geography of the United States will be disrupted directly by climate change[6] or indirectly by those who are.[7] Moreover, I'm concerned that adaptation policies that don't seriously consider elements of redesign, especially to our social fabric, will substantially increase the risk of domestic instability at several scales.

However, I have three critiques of the thought-provoking and otherwise excellent article: one minor, one medium, and one that endeavors to contextualize the article's recommendations.

First, the authors call for the development of enhanced foresight capabilities to navigate difficulties ahead. While this is greatly needed, we should temper our foresight expectations since socio-ecological networks and the climate are complex systems highly likely to possess nonlinear critical transitions (tipping points) that are difficult if not impossible to predict.[8] They also rightly call for scenario planning, a critical tool when forecasting is difficult or impossible.

From my perspective, an emphasis on foresight without commensurate attention to decisionmaking falls flat. For example, the argument that a national foresight system for pandemics would've helped avoid acute disruption is true only to the extent that decisionmakers act on early warnings.[9] To their credit, the authors mention the importance of integrated planning and implementation—but if these elements are not supported or enabled to the same degree as foresight, wasted resources and a false sense of security follow.

More problematic is the article's employment of the 4°C metric in the first place. This is not because 4°C is overly "doomy," but rather that it implies if not identifies climate change as the sole/primary driver of ecological disruption. The authors point out that ecosystems are increasingly likely to be pushed past their tipping thresholds as temperatures increase. While true, the argument overlooks the fact that other ecological stressors—such as biodiversity loss, deforestation, soil toxification, nitrogen and phosphorus overabundance, overfishing, overhunting, pollution and plastics—are often more important drivers of ecosystem instability than climate change. Hence, the probability of crossing these tipping points is likely greater than when looking solely at temperatures, even far below 4°C. Moreover, by excluding the immense dangers[10] to humanity from ecological disruption writ large, the authors have themselves underscoped risk of planetary change. This shortcoming doesn't at all negate the excellent analysis and recommendations of the paper, particularly if adaptive governance and foresight activities were to uptake the larger problem of ecological disruption.

Lastly, the recommendations of the paper need to be contextualized in light of our country's current and probable near-term governance predicament. Writing this Comment in Spring 2023, we commonly watch information, both factual and fabricated, routinely and tribally weaponized.[11] The nation's populace seems especially vulnerable to influence campaigns of all stripes, heightening our collective vulnerability to conspiracy theories and their political ramifications and increasingly displacing evidence-based action. Our inability to significantly improve long-standing societal problems, such as gun violence, healthcare affordability, economic inequality, and racism, suggests that governance is already strained if not altogether broken. Trust in government, authority, expertise, and evidence have all suffered immensely. In this context, it is difficult to envision a pathway, irrespective of its merits, from where we currently sit as a nation to establishing the necessary configurations, mechanisms, trust, and legitimacy for effective anticipatory governance. To their credit, the authors acknowledge the difficult governance hurdles now and ahead; I worry, however, that these too are understated.

6. This includes climate policies as well as the phenomenological effects of climate change.
7. This assessment is probably true for a 2°C scenario as well.
8. This is a mere quibble since the authors clearly understand tipping points and other aspects of nonlinear change.
9. One might argue that SARS-CoV-1, MERS-CoV, and pre-Covid intelligence community threat assessments on coronavirus pandemics were themselves early warnings.
10. Will Steffen et al., *Planetary Boundaries: Guiding Human Development on a Changing Planet*, Science 347.6223 (2015): 1259855.
11. Social media continues to essentially act as an unregulated vector of information, misinformation, and disinformation.