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## Consensus Opinion versus Rapid Change: Afghanistan, COVID-19, and Climate Change

*E. William Colglazier*

What should we conclude about decisions based on consensus assumptions about the future without adequate consideration of the risk of rapid change with large downside consequences? Defending his administration’s planning for America’s exit from Afghanistan, President Biden said, “We got all kinds ... of advice... I made the decision... I took the consensus opinion” that Afghan forces would successfully defend Kabul for several months.<sup>1</sup> The chaos that resulted, lives lost, friends left behind, and damage to America’s reputation—even with a heroic airlift evacuation—resulted in considerable costs across many dimensions.

The speed with which abrupt, discontinuous change can occur is well known to scientists with regard to physical phenomena such as the phase transition when a substance goes from solid to liquid, or when fluid flow becomes turbulent. Engineers have to consider the probabilities and consequences of abrupt catastrophic failure with bridges, buildings, airplanes, and space shuttles. In the political world as well, change can come quickly, as with 9-11, Pearl Harbor, and the fall of the Berlin Wall. Predicting when such rapid change might occur is

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*E. William Colglazier is the editor-in-chief of Science & Diplomacy. He is the former Executive Officer of the National Academy of Sciences (1994-2011), former Science and Technology Adviser to the Secretary of State (2011-14), and former co-chair of the Ten Member Group at the U.N. advising on science, technology, and innovation for the 17 Sustainable Development Goals (2016-18).*

hard, especially when the physical world and political world intersect. However, taking the consensus opinion on what the future might hold can lead to disastrous outcomes without a serious examination of the uncertainties and instabilities that could bring abrupt rapid failure.

The COVID-19 pandemic is another example of a failure to understand the negative consequences of rapid change. In this case, such change resulted from the exponential growth of infections by a virus that is highly transmissible even among asymptomatic people. Many politicians and much of the public failed to appreciate this type of rapid change. Falsely assuming there was no need for urgent action contributed to a catastrophic response in the early stages of this pandemic in many countries. Scientists who understood the problem knew that enhanced public health measures combined with massive testing and tracing had to be implemented quickly, along with the accelerated development of new vaccines. The virus variants have even taught us that evolution can also move very quickly.

Human-caused climate change is another phenomenon in which the physical and political worlds collide, but it has not been a surprise as scientists have predicted it for decades. What is the likelihood of even more rapid change and tipping points, perhaps putting the stability of the earth's climate system at risk, and what are the potential consequences? The recent Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and a recent report on global change research needs by the U.S. National Academies of Sciences, Engineering, and Medicine (NASEM) described the low but non-zero chance of even more rapid change and tipping points with significant consequences:

“Low-likelihood outcomes, such as ice sheet collapse, abrupt ocean circulation changes, some compound extreme events and warming substantially larger than the assessed very likely range of future warming cannot be ruled out and are part of risk assessment ... Such low-likelihood high-warming outcomes are associated with potentially very large impacts, such as through more intense and more frequent heatwaves and heavy precipitation, and high risks for human and ecological systems particularly for high GHG [greenhouse gas] emissions scenarios.”<sup>2</sup>

“Possible Earth-system response to human GHG emissions include not only gradual trends, but also increases in certain types of extreme events and non-linear responses that are self-reinforcing ... They have disproportionate societal impacts ... Tipping points exist not only in the physical climate and ecological systems, but also in social systems ... Experience over the past decade and even the past few months

highlight the need for continued and expanded research in coupled human-natural system disruptions and socioeconomic consequences of extreme events, tipping points, and social tipping points that might influence mitigation and/or vulnerability to climate change.”<sup>3</sup>

Foresight analysis that expands our view of the “cone of uncertainty” is valuable even if we are not good at predicting the future.<sup>4</sup> When circumstances change rapidly, there is a compression of time between conducting foresight analysis and needing to make decisions. This is especially relevant during a crisis with scientific uncertainties and when change is happening much faster than the time required to reach consensus on what to do. It is worse when the economic stakes are high and our nation and the world are politically fractured. The fundamental problem may be that our national and global systems for making political decisions cannot react nimbly enough to deal with rapid change.

How should we make decisions weighing the risks of rapid change outside of our consensus opinion of the future or outside of our ability to make a consensus decision as a society? Alternatively, what might be lost by spending significant resources to mitigate the possibility of rapid change and thereby foregoing the benefits of spending on something better? Adopting the precautionary principle generally can cause opportunities to be lost. Evaluating costs and benefits of decisions is not easy, but better understanding of possible futures that have large downsides is essential. This is especially true with regard to human-caused climate change.<sup>5</sup> With existing national commitments on GHG emissions the United Nations is currently predicting a temperature rise of considerably more than 1.5 degrees centigrade by the end of the century. For the response to the pandemic, advances in science and technology, namely mRNA vaccines, were able to leap over some (but not all) of the political difficulties. But there is no guarantee that science, technology, and innovation can overcome the political hurdles that hinder mitigating climate change.

What are the implications of rapid change caused by the accelerating scientific and technological revolution? Science, technology, and innovation have the potential to create major threats, disruptions, and surprises very quickly, along with benefits. Neither the risks nor the benefits of technologies such as artificial intelligence, gene editing, blockchain, big data, or robotics are precisely known. That has been certainly true for social media, which expanded rapidly with a limited understanding of the many negative consequences. Improved governance of emerging technologies is required if we are to maximize the opportunities while also mitigating the threats and avoiding catastrophic outcomes.

In looking to the future, the question becomes how much insurance is needed to address the likelihood and consequences of rapid change and avoid letting a potential crisis become a real crisis. The cost of insurance goes up as decisions are delayed. It is clear that the Biden administration underestimated the risk of a rapid collapse of the Afghan government in its exit planning.<sup>6</sup> It is also clear that even given the vast collective experience and planning for a pandemic, the world's preparations have been inadequate.<sup>7</sup> These failures had much to do with the fractures in politics and culture, which does not bode well for addressing either the consensus IPCC "high-likelihood" outcomes or the lower likelihood of more rapid climate change with tipping points.

Lastly, how can the advance of science, technology, and innovation be marshaled to limit the likelihood and mitigate the consequences of rapid change in many domains as well as contribute to solving our global challenges? We need to incorporate the expertise of all disciplines, including scholars in the social sciences and humanities who study people, culture, politics, values, and history, to understand the full range of uncertainties. We need more foresight and risk analysis that incorporate assessments of the likelihood and consequences of changes that might occur faster than consensus opinions predict and faster than our societal decision-making processes can react. We need to invest more now and expand greatly international agreements to reduce the risks. And doing so for climate change is essential. **SD**

**Endnotes**

1. Katrina Manson, Aime Williams, and Daniel Dombey, "Biden Pledges to Evacuate Every American Trying to Flee Afghanistan," *Financial Times*, August 21, 2021, [www.ft.com/content/0795a0a7-2b1f-4ce1-bf31-cef4159abbd4](http://www.ft.com/content/0795a0a7-2b1f-4ce1-bf31-cef4159abbd4).
2. Intergovernmental Panel on Climate Change (IPCC), *AR6 Synthesis Report: Climate Change 2022*, 2021, [www.ipcc.ch/report/ar6/wg1/#SPM](http://www.ipcc.ch/report/ar6/wg1/#SPM), 36.
3. National Academies of Sciences, Engineering, and Medicine (NASEM), "Global Change Research Needs and Opportunities for 2022–2031," 2021, [www.nap.edu/catalog/26055/global-change-research-needs-and-opportunities-for-2022-2031](http://www.nap.edu/catalog/26055/global-change-research-needs-and-opportunities-for-2022-2031), 44–45. Two potential consequences of rapid change caused by global warming are "catastrophic tsunamis" and the weakening or shutting off of the Atlantic Meridional Overturning Circulation (AMOC); see Louis Neal, "Climate change risks triggering catastrophic tsunamis, scientist warns," *Financial Times*, September 9, 2021, [www.ft.com/content/eb65d1c3-6220-4ebb-a4d6-eb876ab1b200](http://www.ft.com/content/eb65d1c3-6220-4ebb-a4d6-eb876ab1b200) and Sarah Kaplan, "A critical ocean system may be heading for collapse due to climate change, study finds," *Washington Post*, August 5, 2021, [www.washingtonpost.com/climate-environment/2021/08/05/change-ocean-collapse-atlantic-meridional](http://www.washingtonpost.com/climate-environment/2021/08/05/change-ocean-collapse-atlantic-meridional).
4. Paul Saffo gave "Six Rules for Effective Forecasting" in the *Harvard Business Review* in 2007 (<https://hbr.org/2007/07/six-rules-for-effective-forecasting>). His rules are "(1) Define a cone of uncertainty, (2) Look for the S curve, (3) Embrace the things that don't fit, (4) Hold strong opinions weakly, (5) Look back twice as far as you look forward, and (6) Know when not to make a forecast." Saffo has also noted that another common problem with foresight is the classic failure of imagination, leaving even scientists surprised when change occurs faster than expected. See also E. William Colglazier, "Science and Technology Foresight," *Science & Diplomacy*, March 27, 2017, [www.sciencediplomacy.org/editorial/2017/science-and-technology-foresight](http://www.sciencediplomacy.org/editorial/2017/science-and-technology-foresight).
5. Comparing past and present IPCC reports shows that the indicators and impacts of global warming have occurred faster than originally expected. This can also be seen in the Sixth Assessment Report press release headline in 2021: "Climate change widespread, rapid, and intensifying" ([www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr](http://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr)). A report by the U.S. National Intelligence Council, *Global Trends 2030* (produced in 2012), noted that the pace of change had often been underestimated in earlier *Global Trends*. The most recent report in the series, *Global Trends 2040* (produced in 2021), states that "the pace and reach of technological developments will increase, transforming human experiences and capabilities while creating new tensions and disruptions" ([www.dni.gov/index.php/gt2040-home/introduction](http://www.dni.gov/index.php/gt2040-home/introduction)).
6. Mark Mazzetti, Julian E. Barnes, and Adam Goldman, "Intelligence Warned of Afghan Military Collapse, Despite Biden's Assurances," *New York Times*, published August 17, 2021, updated September 8, 2021, [www.nytimes.com/2021/08/17/us/politics/afghanistan-biden-administration.html](http://www.nytimes.com/2021/08/17/us/politics/afghanistan-biden-administration.html). Intelligence agencies' predictions regarding the survival of the Afghan government became more dire after major irreversible decisions around withdrawal, such as removing non-essential personnel from the U.S. embassy in April and closing Bagram Air Field in early July. The agencies always resisted giving an exact timeframe for the government's likely survival.
7. Even respected scientific regulatory agencies of the U.S. government such as the Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) have had difficulty acting as quickly as needed during a global pandemic. One example is the current debate among scientists regarding the quality of evidence regarding the justification for giving booster shots. The value judgments involved in the debate are procedural, distributional, and evidential; see E. William Colglazier, "The Art of Science Advice," *Science & Diplomacy*, June 30, 2016, [www.sciencediplomacy.org/editorial/2016/art-science-advice](http://www.sciencediplomacy.org/editorial/2016/art-science-advice).