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Climate Change, Conflict and Certainty: New Research in Context

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A new peer-reviewed study published yesterday by Hsiang, Burke and Miguel in *Science*, concludes that there is a significant causal link between a warming climate (even minor temperature variability), more extreme rainfall, and the likelihood of different scales of conflict, ranging from domestic violence to intra and inter-state conflict. It is a meta-analysis of 60 previous peer-reviewed studies, and 45 data sets, published in a respectable scientific journal.

Historical context

In light of this study, the current historical context is worth repeating. We have entered a point in human history that is unprecedented in terms of the rate and scale of climatic change, human population, and economic acceleration. In that sense, 100% certainty about how climate change will influence human societies in the future – including how it will influence human conflict – is impossible to reach. This is normally the case in all fields of social-scientific inquiry, but especially pronounced here, as the climatic conditions we are experiencing today have never been experienced by humans living in settled societies. As such, the historical record can tell us a lot, but we may need to rely more and more on reasonable future projections, such as the Intelligence Community Assessment on Global Water Security, to prepare for future eventualities. But Hsiang et al's study gives us new and solid information about the sensitivity of humans to climate stress, which may be very important in informing how we mitigate future climate risks, which are likely to be much greater than today's and yesterday's.

Hooray for more research, now let's do some more

As Adger, Barnett and Dabelko wisely conclude in a peer-reviewed article released this past June in *Nature*, more research and more theory-building is needed in the climate change-conflict space, in order to better assess the historical record, and extract useful lessons on how to address the issue going forward. And Hsiang et al's study is a step in that direction.

As with all fields of scientific inquiry, particularly those in the early stages of theoretical development, we do not yet have a complete picture of the

climate change and conflict nexus. In this context, as some commentators have suggested, it is important not to overstate it. However, we should also not understate it until we have significantly more research to suggest that the connection is insignificant. The old adage "an absence of evidence is not an evidence of absence" applies here. And in this case, Hsiang et al are chipping away at the "absence of evidence" part, with some strong conclusions. This is evidence. Now it is time to get to work and analyze it, test it, figure out how robust it is, build on – and add nuance to – its conclusions with additional research.

Constructive and non-constructive criticism

Before the ink was dry on this study, some commentators immediately expressed skepticism about the climate change-conflict connection. In short, an old debate was revived overnight. However, the criticism thus far seems to be primarily in response to sensational headlines, and includes scant specific references to the data, methodology and line of reasoning in the study (and frankly, a day is not enough time to dig into the full study, so we suspect not all commentators have read it). For example, Hsiang himself states: "… violent conflicts might occur for a variety of reasons that simply become more likely when climatic conditions deteriorate." But the criticism in the media seems to focus on the strawman that *climate change causes conflict*, which is not a conclusion of the study. "Increases the likelihood of conflict" is the key concept. To clarify, the actual top-line conclusion of the study is worth posting here:

The magnitude of climate's influence is substantial: for each 1 standard deviation (1σ) change in climate toward warmer temperatures or more extreme rainfall, median estimates indicate that the frequency of interpersonal violence rises 4% and the frequency of intergroup conflict rises 14%. Because locations throughout the inhabited world are expected to warm 2-4σ by 2050, amplified rates of human conflict could represent a large and critical impact of anthropogenic climate change.

Simply put, Hsiang et al's study is not an opinion piece, it is a work of scholarship – and deserves to be treated as one. And judging a piece of scholarship based on the media headlines it generates is obviously counter-intuitive. Closer looks at this study over the coming days, weeks and months will hopefully yield thorough assessments. Lauren Morello's write-up on the *Nature* news site is a good start, but it will take some time to get past the heat in the debate (pun intended).

The dangers of waiting for certainty

However this particular study is judged in the future, it has certainly added to a growing evidence base, and policy-makers should take note. If there is a possibility that the risk of conflict increases due to climatic change, as a society we need to at least be prepared to deal with it. That is how risk managers (see "Degrees of Risk"), and military planners (see the U.S. Department of Defense's 2010 "Quadrennial Defense Review" and ASP's "Global Security Defense Index"), responsibly approach such issues already. A debate that generally ignores the data, and a risk analysis framework, in favor of media-driven memes, can be disastrous for the development of sound policy – particularly in terms of policies addressing national and international security. As Andrew Holland at the American Security Project compellingly argues:

For national security planners and professionals, we don't need a scientific consensus directly linking past changes in climate or temperature to violent conflict. When national security planners look at threats to our security, they know that you cannot act with certainty: once you have 100% certainty, it is too late to act. The truth is that so long as there's a persuasive chance that climate change

will cause conflict, prudent actions to mitigate the threat are in order.

We made a similar assertion in a piece published by the *Bulletin of Atomic Scientists*, arguing that in the U.S. context, much lower degrees of certainty persist in the understanding of risks such as the detonation of weapons of mass destruction, international terrorist attacks, and systemic economic crises, and yet we devote significant attention and resources to addressing and preparing for those risks. The risk that climate change can increase the likelihood of conflict should be treated in much the same way. It's a probable risk, and we cannot wait until it is too late to develop smart policies to address it.

But "smart policies" is a key phrase here. As Dabelko, Herzer, Null, Parker and Sticklor argued in a recent Woodrow Wilson Center publication, it is important to avoid instituting policies that might heighten the possibility of conflict. The Thomas Midgley "Law of Unintended Consequences" comes to mind…

Gaps in conflict analysis

Another missing element of the discussion generated by this study, and similar ones in the past, is the degree to which conflict analyses currently include variables related to environmental and climate security. For example, the Failed State Index, a popular and oft-cited index for assessing "failed states," which looks at conflict and conflict potential, does not, as of yet, incorporate climate variables – ones that can lead to agricultural disruption, and forced migration, as occurred in Syria from 2006-2011, a phenomenon that security analysts largely left out of assessments of Syria's stability in the past. This suggests that the conflict literature may also include significant holes that may need to be patched up, if we are to better understand drivers of violence**.** In that context, Hsiang et al's research can help feed into the development of more comprehensive conflict indices and better risk-assessment frameworks, which can in turn improve sub-national, national and international security.

Conclusion

Hsiang et al's study provides compelling data in support of the assertion that climate change can increase the "likelihood" of violent conflict, on a number of different scales. However, it is not the end of inquiry on the subject. More research needs to be done to test the linkages between temperature variance and the kind of human behavior that leads to conflict, and to disentangle lines of causation.

But wherever the scholarship leads us in the future, it is becoming increasingly clear that there is a scientifically sound probability that climatic changes can heighten the risk of conflict. That is more than enough certainty to suggest that our governments and publics need to take the security risk of rapid and unprecedented climate change seriously. To quote retired U.S. Army General Gordon Sullivan:

People are saying they want to be perfectly convinced about climate science projections…But speaking as a soldier, we never have 100 percent certainty. If you wait until you have 100 percent certainty, something bad is going to happen on the battlefield.

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