

Study investigates how much climate change affects the risk of armed conflict

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Climate-related hazards, such as droughts, can cause economic shocks to agricultural communities, which may heighten the risk of armed conflict, according to a new Stanford-led study. Credit: Pablo Tosco/Oxfam

Intensifying climate change will increase the future risk of violent armed



conflict within countries, according to a study published today in the journal *Nature*. Synthesizing views across experts, the study estimates climate has influenced between 3% and 20% of armed conflict risk over the last century and that the influence will likely increase dramatically.

In a scenario with 4 degrees Celsius of warming (approximately the path we're on if societies do not substantially reduce emissions of heattrapping gases), the influence of climate on conflicts would increase more than five times, leaping to a 26% chance of a substantial increase in <u>conflict</u> risk, according to the study. Even in a scenario of 2 degrees Celsius of warming beyond preindustrial levels—the stated goal of the Paris Climate Agreement¬ - the influence of climate on conflicts would more than double, rising to a 13% chance.

"Appreciating the role of climate change and its security impacts is important not only for understanding the social costs of our continuing heat-trapping emissions, but for prioritizing responses, which could include aid and cooperation," said Katharine Mach, director of the Stanford Environment Assessment Facility and the study's lead author.

Climate change-driven extreme weather and related disasters can damage economies, lower farming and livestock production and intensify inequality among social groups. These factors, when combined with other drivers of conflict, may increase risks of violence.

"Knowing whether environmental or <u>climatic changes</u> are important for explaining conflict has implications for what we can do to reduce the likelihood of future conflict, as well as for how to make well-informed decisions about how aggressively we should mitigate future climate change," said Marshall Burke, assistant professor of Earth system science and a co-author on the study.

Finding consensus



Researchers disagree intensely as to whether climate plays a role in triggering civil wars and other armed conflicts. To better understand the impact of climate, the analysis involved interviews with and debates among experts in political science, <u>environmental science</u>, economics and other fields who have come to different conclusions on climate's influence on conflict in the past.

The experts, who also served as co-authors on the study, agree that climate has affected organized armed conflict in recent decades. However, they make clear that other factors, such as low socioeconomic development, the strength of government, inequalities in societies, and a recent history of violent conflict have a much heavier impact on conflict within countries.

The researchers don't fully understand how climate affects conflict and under what conditions. The consequences of future climate change will likely be different from historical climate disruptions because societies will be forced to grapple with unprecedented conditions that go beyond known experience and what they may be capable of adapting to.

"Historically, levels of armed conflict over time have been heavily influenced by shocks to, and changes in, international relations among states and in their domestic political systems," said James Fearon, professor of <u>political science</u> and co-author on the study. "It is quite likely that over this century, unprecedented climate change is going to have significant impacts on both, but it is extremely hard to anticipate whether the political changes related to <u>climate change</u> will have big effects on armed conflict in turn. So I think putting nontrivial weight on significant climate effects on conflict is reasonable."

Planning ahead



Reducing conflict risk and preparing for a changing climate can be a winwin approach. The study explains that adaptation strategies, such as crop insurance, post-harvest storage, training services and other measures, can increase <u>food security</u> and diversify economic opportunities, thereby reducing potential climate-conflict linkages. Peacekeeping, conflict mediation and post-conflict aid operations could incorporate climate into their risk reduction strategies by looking at ways climatic hazards may exacerbate violent conflict in the future.

However, the researchers make clear there is a need to increase understanding of these strategies' effectiveness and potential for adverse side effects. For example, food export bans following crop failures can increase instability elsewhere.

"Understanding the multifaceted ways that <u>climate</u> may interact with known drivers of conflict is really critical for putting investments in the right place," Mach said.

More information: Climate as a risk factor for armed conflict, *Nature* (2019). DOI: 10.1038/s41586-019-1300-6, www.nature.com/articles/s41586-019-1300-6

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