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### Global warming could increase human conflict worldwide: study

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WASHINGTON, Aug. 1 (Xinhua) -- Global warming will probably trigger more human conflict and violence worldwide, according to a study published Thursday in the U.S. journal Science.

Researchers from the Princeton University and the University of California Berkeley found that even slight spikes in temperature and rainfall have greatly increased the risk of personal violence and social upheaval throughout human history.

The researchers analyzed 60 studies from a number of disciplines, including archaeology, criminology, economics and psychology, that have explored the connection between weather and violence in various parts of the world from about 10,000 BCE to the present day.

They found that while climate is not the sole or primary cause of violence, it undeniably exacerbates existing social and interpersonal tension in all societies, regardless of wealth or stability.

They found that one standard-deviation shift, or the amount of change from the local norm, in heat or rainfall causes the likelihood of personal violence such as rape, murder and assault to rise 4 percent and intergroup conflict such as riot, civil war or ethnic conflict to rise 14 percent.

According to the researchers, one standard deviation is roughly equal to warming an African country by 0.35 degree Celsius for an entire year, or warming a county in the United States by 2.9 degrees Celsius, for a given month.

The researchers examined three categories of conflict: personal violence and crime, which includes murder, assault, rape and domestic violence; intergroup violence and political instability, such as civil wars, riots, ethnic violence and land invasions; and institutional breakdowns, which are abrupt and major changes in governing institutions or, in extreme cases, the collapse of entire civilizations.

They found that extreme climatic conditions amplified violence in all three categories, regardless of geography, societal wealth or the time in history.

Examples include spikes in domestic violence in India and Australia, increased assaults and murders in the United States and Tanzania, ethnic violence in Europe and South Asia, land invasions in Brazil, police using force in the Netherlands, civil conflicts throughout the tropics; and even the collapse of Mayan and Chinese empires.

"We find the same pattern over and over again, regardless of whether we look at data from Brazil, Somalia, China or the United States," said study co-author Edward Miguel, director of the Center for Effective Global Action based at the University of California Berkeley. "We often think of modern society as largely independent of the environment, due to technological advances, but our findings challenge that notion."

The findings could have "critical implications" for understanding the impact of future climate change on human societies, as many global climate models project global temperature increases of at least 2 degrees Celsius by 2050, the researchers said.

"We think that by collecting all the research together now, we're pretty clearly establishing that there

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is a causal relationship between the climate and human conflict," lead author Solomon Hsiang from the University of California Berkeley said in a statement.

"People have been skeptical up to now of an individual study here or there. But considering the body of work together, we can now show that these patterns are extremely general. It's more of the rule than the exception," Hsiang said.

"Once we understand what causes this correlation we can think about designing effective policies or institutions to manage or interrupt the link between climate and conflict," Hsiang added.

Editor: Mu Xuequan



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