

# CLIMATE CHANGE 'CAUSES RISE IN VIOLENCE'



Changes in climate, such as increased drought and above-average annual temperatures, have caused a rise in human violence across the world, according to a study published today in *Science*.

Hotter temperatures and extreme rainfall have been linked to greater conflict, from domestic violence to riots, civil wars and the break-up of governing institutions and even civilisations.

The paper warns that rising greenhouse emissions could result in greater amounts of violence.

"If future populations respond similarly to past populations, then anthropogenic climate change has the potential to substantially increase conflict around the world, relative to a world without climate change," it says.

There has been a scientific debate over whether climate plays a role in instigating human conflicts, with some studies finding evidence for climate's role and others disputing it.

The new research, by a team from the University of California, Berkeley, and Princeton University, both in the United States, reanalysed the data from 60 papers from different disciplines, including archaeology, economics, political science, psychology and geography.

The researchers looked at data from around the world and events such as spikes in domestic violence in India, and the collapse of Mayan and Chinese empires.

"We analysed the studies under a common framework and found that small deviations in normal temperatures or precipitation lead to a very large increase in conflicts, and this happens both in poor and rich areas of the world," Marshall Burke, one of the study's authors and a researcher at Berkeley, tells *SciDev.Net*.

To take into account the different climates found in different regions, and to be able to compare results across countries with different climate patterns, the researchers standardised the results by measuring so-called 'standard deviation'.

A single unit of standard deviation shift towards hotter conditions — equivalent to, for example, warming an African country by 0.4 degrees Celsius for a year — caused a four per cent rise in the likelihood of personal violence, such as assaults and murder, and a 14 per cent increase in conflict between groups, such as riots or civil wars.

"These are moderate changes [in temperature], but they have a sizeable impact on societies," Burke said in a press release.

**“We know that in developing countries climate is related to conflict because it affects economic conditions.”**

- Marshall Burke

Co-author Edward Miguel, a professor in environmental and resource economics at Berkeley, added: "We often think of our society as largely independent of the environment, due to technological advances, but our findings challenge that notion".

Around the world, temperatures are expected to rise by around 2-4 standard deviations by 2050, the paper says, amplifying the rates of conflict.

The study does not identify the specific risk factors that mediate the link between climate and violence, saying there may be multiple pathways and that they may differ between contexts.

"For example, we know that in developing countries climate is related to conflict because it affects economic conditions," says Burke. "So if you get a very hot year or dry year, this will affect people's livelihood and ultimately will influence decisions about joining conflicts."

As economic factors and food security play an important role in triggering violence and political instability in developing countries, Burke believes that technological responses may help.

There are various ways to help poor societies avoid the conflicts linked to changing climate, Burke adds. "For example, farmers can adopt varieties that are more tolerant to extreme weather or policymakers can think about insurance schemes."

Luca Russo, a food security policy analyst at the UN's Food and Agriculture Organization, tells *SciDev.Net* that the organisation has found similar links in its research on "the complex relationship between climate change, violence, social crisis and food security".

"Crisis in developing countries is the result of a combination of environmental, social and economic factors," he says.

"We found that countries that experience a prolonged state of crisis also have higher levels of food insecurity."

Source : <http://www.scidev.net/global/conflict/news/climate-change-causes-rise-in-violence.html>